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MOTOR CYCLIST

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Haven't you always longed to join them ? The carefree, breakaway people who leave the rat-race a thousand miles behind to search for that one pulse-quickening, exhilarating experience by which all others will be judged ?

But your friends didn't approve of your escapist philosophy. Such things don't happen in real life, they said. Maybe.

But the day you glimpsed your first Commando Interstate on the horizon you knew they were wrong.
The thrill of recognition proclaimed that here at last was all the challenge you'd been waiting for.
With that virile engine and unmatched Norton rideability, race-proved for dynamic performance on and off the freeway, who couldn't reach the heights ?

So, find your nearest dealer, but remember, don't just try a bike, try a Norton – it's *your* dream-maker.

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Commando 750s
–all with the isolastic super-ride

For the name of your nearest U.S.A. dealer, write or call :
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East of Mississippi River : Berliner Motor Corporation,
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West of Mississippi River : Norton Villiers Corporation, 6765 Paramount Blvd.,
North Long Beach, California 90805.
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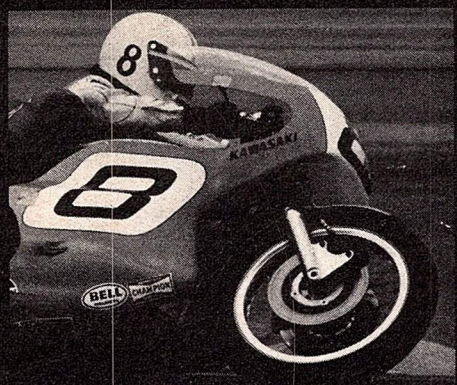
Featured: Commando Interstate with high performance Combat engine, Norton-Lockheed hydraulic front disc brake and 6 gallon long-distance gastank. Color options: midnight blue and candy apple.

PAGE 40



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MOTOR CYCLIST

PUBLISHED MONTHLY • NO. 907 • JANUARY 1973

PAGE 62

PAGE 38

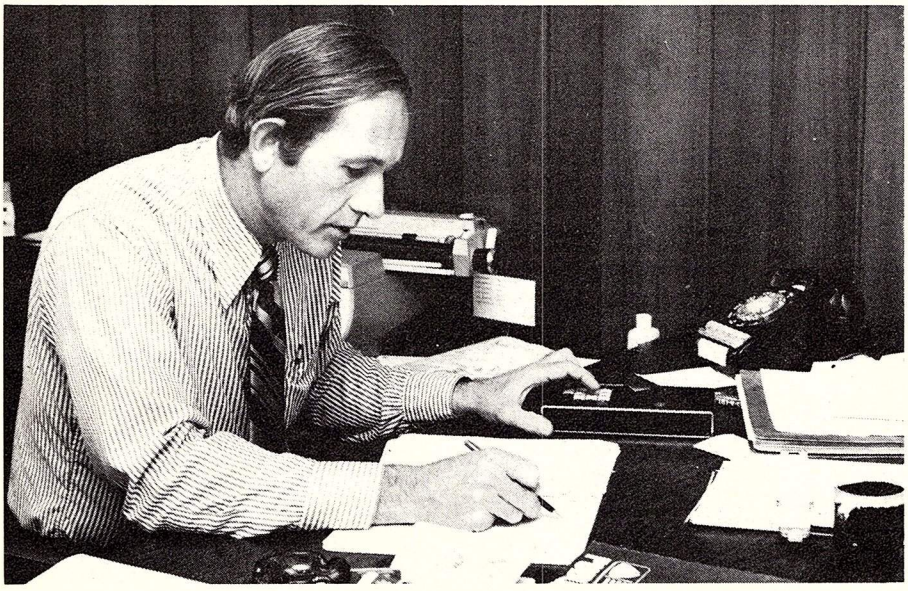
COVER

Motorcyclist staffers Dave Holeman, John Jo and Tony Murphy do a little formation flying on Suzuki's 1973 380, 550 and 750 triples. For what they found out about these new stormers, see story starting on page 40. Photography by Eric Rickman.

Coffee Break with the Editor

With this issue, the new **Motorcyclist** Magazine is a year old. Twelve issues have come and gone since the oldest American motorcycle magazine was brought into the Petersen Publishing Company family. Last year at this time we had a total of five staff members, all fresh from their duties with **Motorcycle Sport Quarterly,** a publication that is still with us, in spirit at least, in our annual **Motorcycle Buyer's Guide.** The requirements of a monthly magazine being what they are, the staff members went from five to seven to nine, and now as sort of an anniversary present to ourselves and our readers, we've made it an even ten.

Meet William A. Ocheltree, a gung-ho motorcyclist who now joins the staff.



Bill's credentials speak for themselves. He's a graduate mechanical engineer who can whip up formulas for this and that at the drop of a slide rule. After a dozen years as a Senior Design Engineer with Lockheed Aircraft there are few, if any, areas of motorcycle design that will strain his engineering knowledge. Add the fact that he's a regular competitor in off-road competition and is deep enough in club activities to be Vice President of the Sunland Shamrocks Motorcycle Club, and you have an all-arounder who can do nothing but reinforce the now complete **Motorcyclist** team.

The addition of a genuine engineer will allow us to offer comments and make criticisms in areas that we feel deserve them, and qualify them with engineering fact rather than layman opinion. Based on facts that can be substantiated, a technical story takes on more credibility, an engineering impression carries more weight. We plan to exercise Bill's mind and his slide rule at every opportunity, turning him loose on in-depth road test evaluations while the less qualified critics among us will stick to seat of the pants testing. Every nut, bolt and screw will come under his scrutiny, and should a design error or manufacturing execution fall short of the idea, he'll point it out.

Meanwhile, the rest of us will be far from idle. Our first year is behind us, it's history. We're looking to 1973 as the year that **Motorcyclist** Magazine stops drafting the leader and makes that successful bid for the front running position. We've been hanging in there, watching the competition's every move. Now and then he sneaks a look over his shoulder, aware that we've got the horsepower, know every corner on the racetrack and are streamlined enough to make a move at any time. Last time by the pits, crew chief Bob Petersen flashed the signal we've all been waiting for. It says, "take the lead and hold it." Here we go.

Bob Greene

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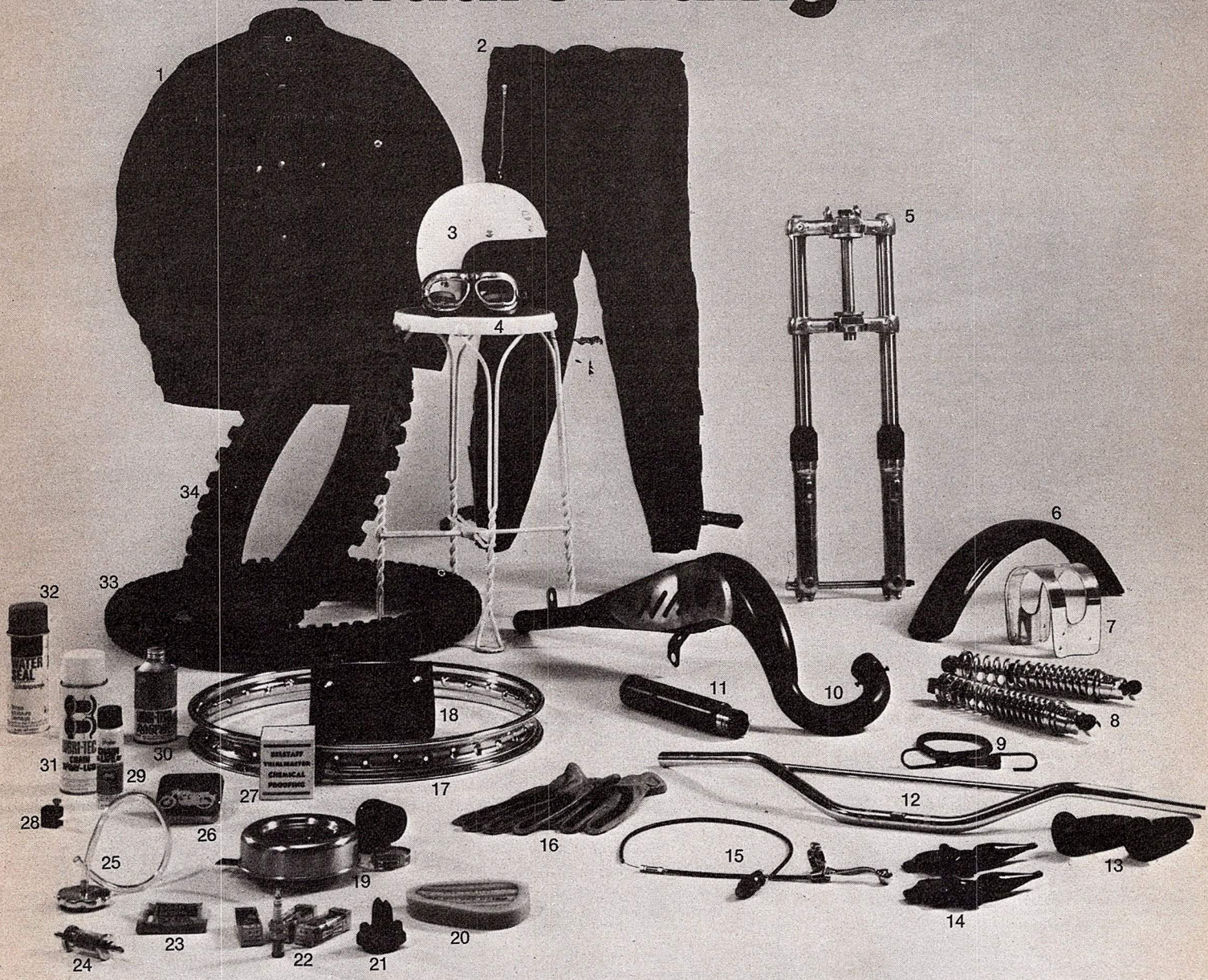
When you think of Enduro riding...



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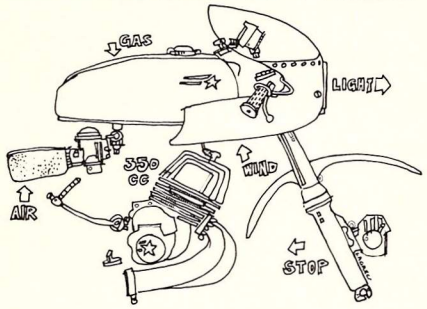
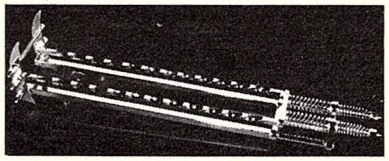
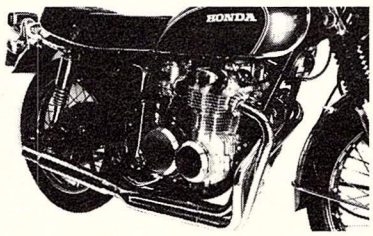




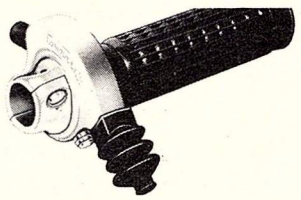
INTERNATIONAL MOTORCYCLES INC. releases new springer line that features unique stem and leg clamping for greater safety and handling, steel stems that withstand hard riding, square springs that give better springer action and heli-arc welds for strength. Produced in three styles—square, twisted or round, the IMI springers are available in 6, 10 and 15-inch overstock sizes and cost $265, $275 and $285 respectively. From: INTERNATIONAL MOTORCYCLES INC., Dept. MC, 537 W. Roseville Rd., Lancaster, Pa. 17601

SPEED CENTER, USA announces a new innovation in helmet visors. For competition riders who desire continued visability throughout the race, "Flip-up Goggles" is the answer. Fitting all helmets, it's an universal duck-bill visor with a permanent lens and comes complete with a packet containing 5 tear-off lenses which attach to the permanent lens. Both the flip up and Carrera goggles pictured are $9.95 each plus 80¢ for postage. Send to: SPEED CENTER, USA, Dept. MC, P.O. Box 394, Costa Mesa, Calif. 92627

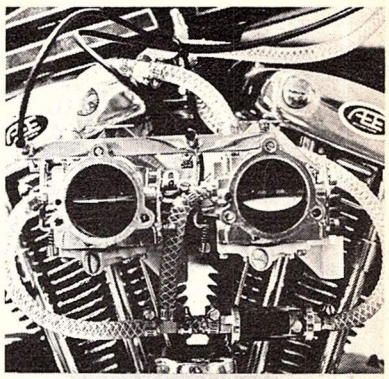
FLEX CABLES for brake and clutch actuation offer unequaled smoothness and control. They're made expressly for moto-cross competition and to Malcolm Smith Racing Products' specifications. All cables are red and feature full nylon inner sleeve and lube fitting. Prices depending on length, $2.60 to $4. From: MALCOLM SMITH RACING PRODUCTS, Dept. MC, 1689 La Cadena, Riverside, Calif. 92501

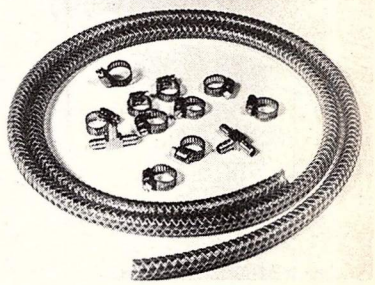


S&S HEADERS release a new extractor system for 500cc Hondas. This distinctively styled system features smooth mandrel-bent head pipes and a one-piece fiberglass muffler for deep throaty sound. The exhaust is designed to clear stock kickstands and provides additional ground clearance. The extractor increases hp and adds a custom touch to your Honda. Bolts on in minutes; there are no modifications required to engine or frame. Price: $89.95. Order direct from: S&S HEADERS, Dept. MC, 316 E. Dyer Rd., Santa Ana, Calif. 91707



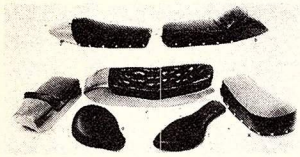
TOMMASELLI offers this 7/8-inch Speed model throttle grip designed for fast action. The black grip is built on nylon tubing and has a polished aluminum cap. Maximum travel is 1 5/16 inches. Complete grip and spare parts are available from: EURASIAN AUTOMOTIVE PRODUCTS, Dept. MC, 2450 Faber Place, Palo Alto, Calif. 94303



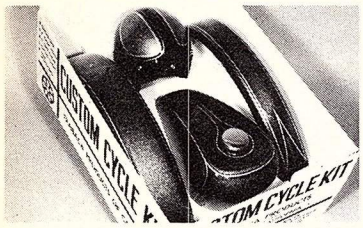


FROM A.E.E. CHOPPERS is a kit specially designed to assist the motorcyclist in customizing dual carburetor systems. Kit comes with necessary fittings, fuel line and clamps to create a look of quality. Works with Harley Tillotson carbs as well as others. $8.95 each. Order from: A.E.E. CHOPPERS, Dept. MC, 730 Monroe Way, Placentia, Calif. 92670

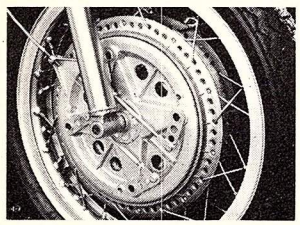
CYCLE SPECIALTIES, INC. now has a new product for the big Suzuki 750 water cooled cycle. Finned and polished, cast in one piece for each side, this new accessory bolts on in only minutes The styling blends perfectly with the smooth lines of this big highway bike. Priced at only $20.95, the Suzuki radiator side covers add a custom look. When ordering include 50¢ for postage and handling. Forward remittance to: CYCLE SPECIALTIES, INC., Dept. MC, 2065 12th St., Sarasota, Florida 33577



THE FIBERGLASS WORKS markets a new line of cycle seats that incorporate strength, comfort and dependability plus a lifetime guarantee. The two TT seats and moto seat (a,b,g) have snap-on replaceable covers. The cafe racer seat (c) can be installed on most street bikes while the Honda 750 seat (e) is designed to use stock mounts. The classic solo (d) seat is the lightest of the bunch and the half-mile seat (f) was designed by Gene Romero and is race proven. Made by: THE FIBERGLASS WORKS, Dept. MC, 328 Ingalls St., Santa Cruz, Calif. 95060



TRABACA PRODUCTS designs a complete new line of cycle custom kits for all motorcycles. The kits are available in three color schemes and come complete with custom painted Sportster tank, helmet and two fenders. All components are fuel-proof coated and made from aircraft quality fiberglass. Also included in kit are two petcocks, one gas cap and a mounting kit. Retails for $174.95 per kit. See TRABACA PRODUCTS, Dept. MC, 837 W. 18th St., Costa Mesa, Calif. 92627



UNIQUE EIGHT-LEADING shoe, 265mm die-cast motorcycle front brake is manufactured by CERHAN MACKAY AUTOMOTIVE LTD. and retails for $180. Although the 8LS brake is obviously of enormous interest to the racing boys, it is sure to generate interest among cafe racers everywhere. For further info contact: CERHAN MACKAY AUTOMOTIVE LTD., Dept. MC, Industrial Estate, Mildenhall, Suffolk, England.

In every sport there's a number

A lot of different bikes have won a lot of different races. But there's only one World Motocross Champion: Suzuki.

Suzuki has won both the 250cc and 500cc 1972 World Motocross Championships.

This makes three years in a row that we've won the 250. And two years for the 500. (We've only entered the last two.)

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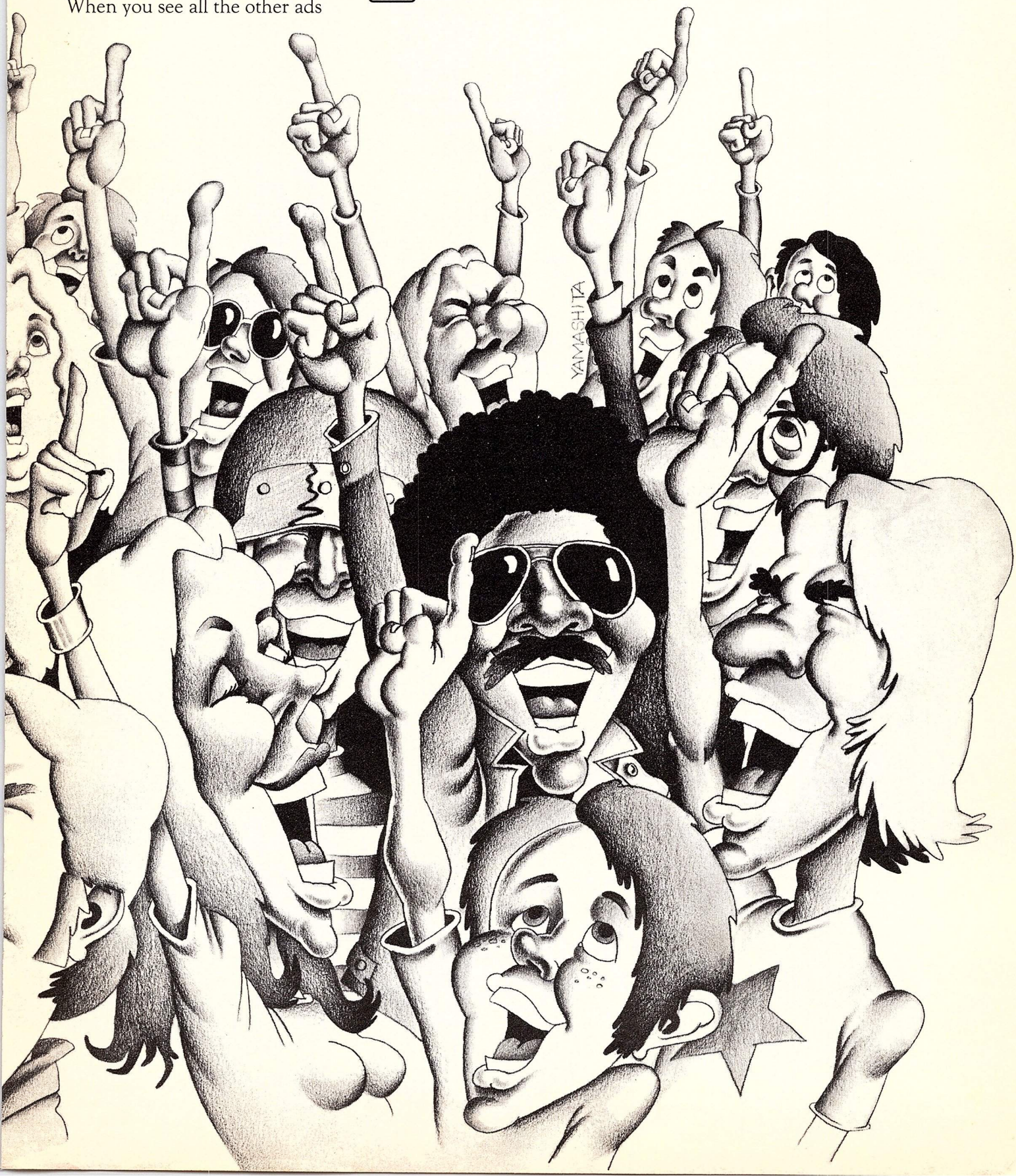
one. In motocross it's Suzuki.

In addition, Joel Robert won the 250 Individual Championship on a Suzuki. Roger DeCoster won the 500 Individual Championship on a Suzuki.

When you see all the other ads shouting "we won," remember that number one in motocross is Suzuki.

We one.

MIC **Suzuki: built to take on the country.**



Motorcyclist Hotline

AMA Competition Congress

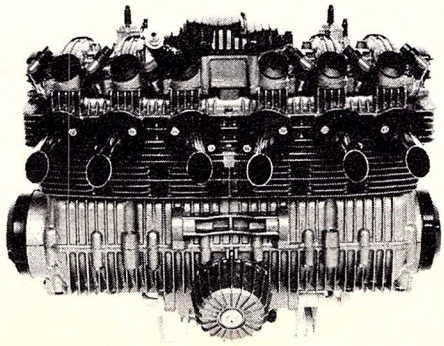
During the 5th annual American Motorcycle Association Competition Congress held in Columbus, Ohio October 9 through 12, delegates from the motorcylce industry, the professional racing sport, and the 33 AMA club districts passed legislation creating major revisions in all amateur motorcycle competition and road rider activity sanctioning procedures.

Traditionally, the heated issues at the AMA Competition Congress have fallen in the area of professional racing, but this year the congressmen addressed themselves to changes in the amateur and road rider rule books that will include a major re-write of the road rider book and the establishment of a semi-professional racing class to be sanctioned and run according to amateur rules. The aggressive and optimistic attitude of the group carried even into a self-evaluation which ended in the body changing its name to the AMA Congress, reflecting the desire to deal with problems in areas other than motorcycle racing.

Romans On The March

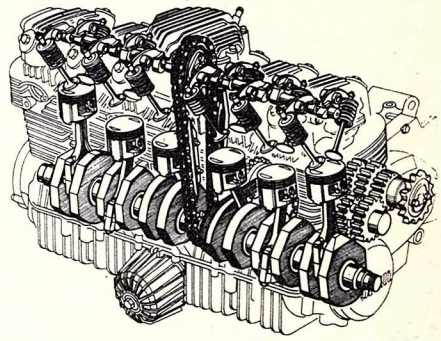
Yes, it is true; at an official press preview in Modena, Italy, Alejandro de Tomaso, world-famous automotive stylist and now president of Benelli, showed the first six-cylinder motorcycle ever built for public sale.

In the courtyard of the Tomaso-owned, 17th Century Canal Grande Hotel, Tomaso gave select members of the world press a breathtaking look into the immediate future when he dramatically whipped aside the cover veiling Benelli's heretofore super-secret 750cc multi.



Seconds later the "Renaissance Prince" nailed the Six's electric starter, beamed proudly and winged the exotic engine to astronomic revs, rattling windows in the three-century-old converted castle.

It was a thrilling moment, for he had indeed captured a fresh, bold styling concept that guaranteed the sleek, low missile a prestigious position at the head of the pack. For in addition to having two more cylinders than the current Japanese Honda and Kawasaki fours, the Benelli is considerably lighter and lower, and unquestionably ingrained with the traditional road-holding and handling qualities that are a trademark of all Italian vehicles, two-wheeled or four.



But don't look for the "Sei" (Italian for Six) for at least a year; first production has been promised homeland enthusiasts as part of a planned program to give the toe of the boot to the swelling import invasion. The Roman counter-attack has begun. You will be dazzled.

And in the second wave are two fours from Benelli, a 350 and a 500, both of which could possibly surge ahead of the Six in respect to beaching American shores. With luck, we might be seeing the Fours within six to eight months.

Petition Power

The Nation's White House provided the backdrop for a group of motorcyclists on September 12 as representatives of the AMA and MIC Joint Committee on Land Use delivered petitions with 150,000 signatures to Mr. Howard A. Cohen, Staff Assistant to President Nixon. This was the culmination of an effort that began in mid-February when

L. to R: Howard Cohen; Raymond Lucia, MIC; Lester White, Honda; Gene Wirwahn of AMA.

the President issued Executive Order 11644 pertaining to the use of off-road vehicles on public lands.

In that order, President Nixon charged several administrative agencies with the task of formulating guidelines

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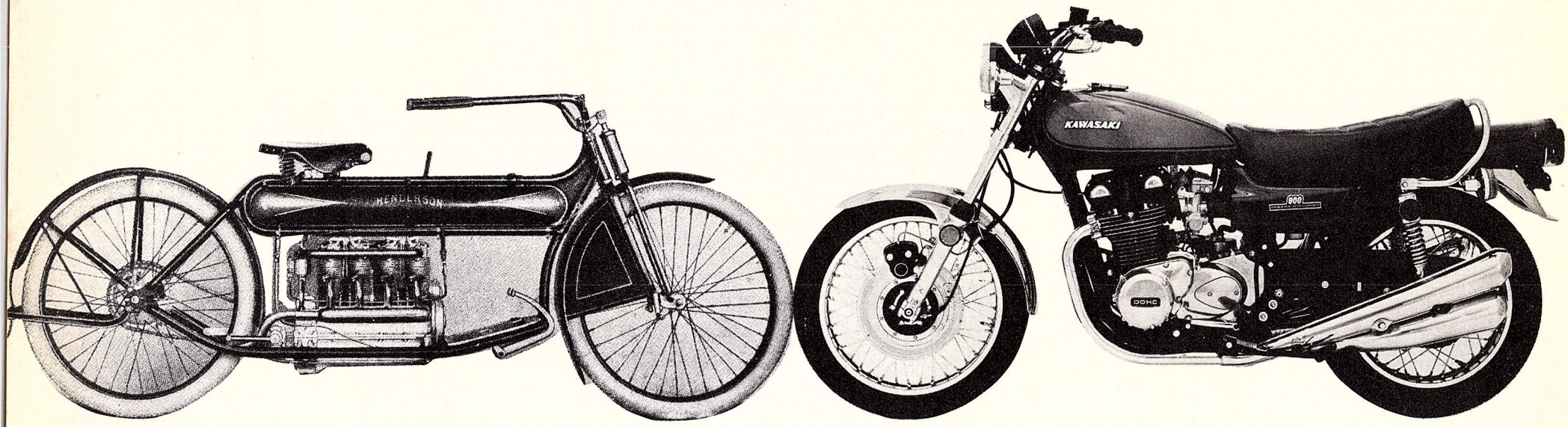

COMPARED TO WHAT?

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You're on top of the progress (or lack of it) being made towards perfecting the kind of bike that satisfies *your* needs.

Like the handling of the 1913 Henderson "dinosaur" vs. the punch-power of the new Kawasaki 900cc.

And that holds for every direction your motorcycle interests take you. From fix it to find it, racing to road tests, models to modifications, touring to trailing. You're riding high. Because you can always answer "compared to what?"

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HOTLINE *Continued from page 8*

for the use of all types of off-road vehicles on government owned real estate. Immediately after issuance of the Executive Order, the MIC adopted a resolution supporting its goals at a special meeting of the Board of Directors. Subsequently, AMA and MIC joined forces in a petition campaign endorsing the provisions of the Order.

In an amiable meeting with Cohen, the petitions were presented by Lester K. White of American Honda Motor Company, Chairman of the AMA-MIC Joint Committee. Mr. Cohen assured that the petitions would be brought to the President's attention.

New Director For Santee

Derek Whitehead, President of Santee Industries, recently announced the appointment of Sam C. Napolitan as his firm's National Director of Sales and Public Relations. In his new position, Napolitan will have responsibility for over-all direction and coordination of Santee's sales, marketing and publicity programs.

Prior to joining Santee, Napolitan was the general manager for Bob Bailey Enterprises. In addition, he is a

Sam Napolitan in new position with Santee.

former public relations coordinator for Yamaha International Corporation, and also spent several years under the employ of a Michigan-based newspaper chain as a columnist, sports writer, and advertising representative.

Santee Industries is a manufacturer of custom motorcycle parts and accessories and distributes nationwide to a distributor/dealer network totaling nearly 1000 members. Their 30,000-square-foot facility is based in San Fernando, Calif.

All 50 States

An important goal was reached by the Motorcycle Industry Council last fall with the organization of a State Dealer Association in Hawaii, the fiftieth state to start MIC accrediatation proceedings.

MIC's Director of Associate Membership, Gary G. Throneberry, presided at the meeting at the Sheraton-Waikiki that marked the unification of all the states under the Motorcycle Industry Council banner. The temporary officers elected at Friday's session were: R.D.Proctor, President; James R. Alfiler, Vice President; and Robert L. Sharp, Secretary-Treasurer. According to MIC's accreditation regulations, these officers will remain in office temporarily until the necessary paperwork for accreditation is completed.

At the present time more than 2,000 retail motorcycle dealers are Associate Members of MIC and some 35 states have been accredited fully by the MIC while 15 more are pending. All 50 states will be accredited in a month.

Go Fast And Fast Eddie Teamup

Agreements signed today at the headquarters of Engine Specialties, Incorporated, Croydon, Pennsylvania, marked the birth of a new line of strictly-competition motorcycle equipment to be called "Gary Fisher 'Go-Fast' Products".

In announcing the venture, Carmen DeLeone, E.S.I. President, said, "Gary is one of the fastest and most knowledgeable road racers riding today. We feel that he is uniquely qualified to make the necessary evaluations and critical judgements on new competition products. All products that carry Gary's name and his famous "Go Fast" emblem will be thoroughly race-track tested and approved by Gary personally."

Gary Fisher closes deal with Carmen DeLeone.

Commenting on the agreements, Gary Fisher said, "We're joining with E.S.I. to create a new generation of safer and more reliable competition equipment to meet the demanding needs of the 200 mile-per-hour motorcycle racer. In my father's days, the hot bikes were going 125 and 130 mph. Now, we're pushing 190 mph and the punishment on the rider and his equipment is far greater than ever before.

Beyond Gary's expert help in new product development, E.S.I. will also be gaining the valuable assistance of Gary's father, 'Fast Eddie' Fisher, a long-time cycle dealer and ex-championship road racer. •

PDV

TRC 125cc

SPECIFICATIONS:
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OIL INJECTION
MULTI PLATE WET DISC CLUTCH
DOUBLE LOOP CRADLE FRAME
8 INCH CLEARANCE
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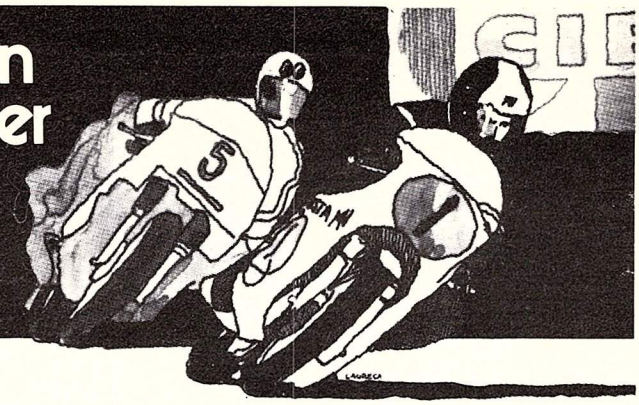
European Newsletter

By Mick Woollett



Just seven days after his great win at Ontario, Paul Smart was back in England riding his Team Hansen Kawasaki in the "Race of the South" at Brands Hatch. And he got beaten too! After equalling the lap record for the 2.65-mile course at 91.03 mph, the ignition of the three-cylinder 750cc flyer went sick and Paul was happy to limp home in second place. Winner was Phil Read on one of those beautiful blue and white factory Nortons. In fact it was Phil's first win on one of the British machines since he started riding them at Daytona in March. No wonder he quipped: "about time too" as he got the trophy.

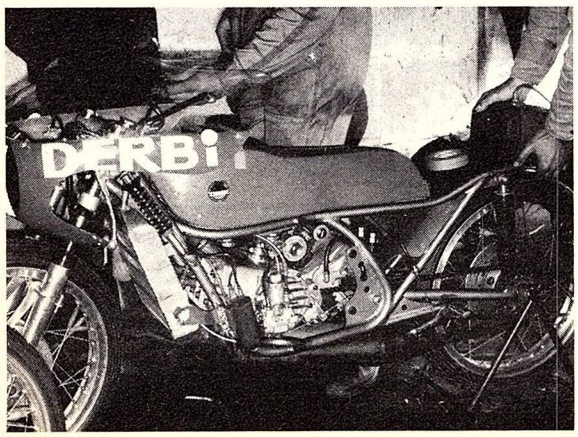
In the supporting big-bike race, John Cooper came from behind on his factory BSA-Triumph three-cylinder racer to pass Read two laps from the end of the race and to win. This was a great effort for just an hour earlier Cooper had crashed at over 100 mph when battling with Smart for the lead during the first lap of the feature race. Cooper, winner at Ontario in 1971, somersaulted down the circuit taking the paint off his helmet, skinning the knuckles on his right hand and bruising his chest. The bike was a mess too with the right side flattened and the handlebar, footrest and even the ignition coils wiped off. While John got his wind back, mechanic Steve Brown rebuilt the bike in less than an hour, and minutes before the start the job was completed. In the race John took it easy for the first few laps but then speeded to catch and pass both Peter Williams (Norton) and race-leader Read. Which, however you look at it, takes guts. It was Cooper's last race on the BSA-Triumph "three". For within a few days a truck from the British factory called at Cooper's automobile body repair shop in Derby to collect the bike that John had ridden so successfully. The same truck took Tony Jeffries' works Triumph too, for as reported last month BSA-Triumph has pulled out of European racing.

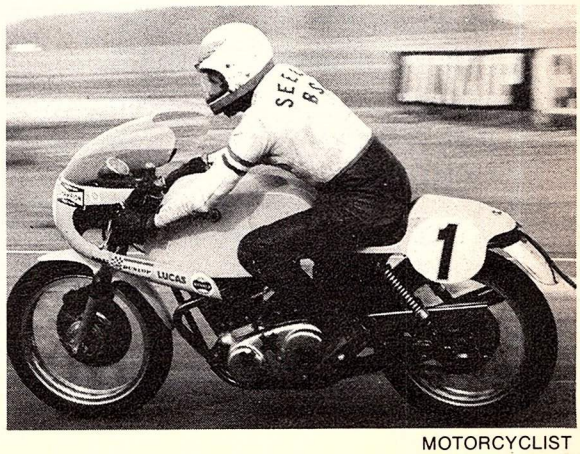
Exactly what will happen to the bikes remains to be seen. As usual with BSA-Triumph some say one thing and some another. Race chief Doug Hele wants the bikes kept under lock and key at the factory. "They are no use without factory mechanics to maintain them and in any case without development they will not be competitive for long," is Doug's view. But others among the management (we haven't been able to work out who is in charge yet) say that the bikes will be sent abroad where they will be raced by distributors who have the knowledge and facilities to maintain them. Countries mentioned include Canada, Australia and South Africa.

Another alternative has been offered by Colin Seeley, builder of the Seeley single-cylinder 500cc racers, who now has close ties with the Brabham car racing organization. In fact Colin has been busy this year reorganizing the Brabham business for new owner Bernie Eccleston. "We have the car side running smoothly now and are eager to get back into bike racing. We would like to take the BSA-Triumph racing team over completely and to run it for them in much the same way that Bob Hansen ran the Kawasaki racing team this year", said Seeley. He pointed out that his new motorcycle factory in Erith, Kent was nearly complete and that through the Brabham side of the business he now has excellent facilities to test and develop racing engines. Seeley also felt that he could get a major sponsor to back the project—just as the British tobacco giant John Player sponsors the Norton team. "That way it would cost BSA-Triumph nothing. They would give us the bikes and existing spares and would pass on their know-how. We would sign on the riders and run the bikes at all the big meetings including Daytona. The bikes would have our frames and would be called Seeley-Triumphs or Seeley-BSAs. We would both get publicity and I'm certain the bikes would be winners." What will happen? My guess is that they will be kept under lock and key at the Triumph factory and that the factory will creep back into racing next year. Doug Hele may be quiet but he has a knack of getting his way in the long run.

Big bikes are in the news in Europe. Rumor has it that Benelli is rushing development work on its six-cylinder 750cc sports model in order to announce it before Honda brings out its rumored six-cylinder 900cc machine. But in France, where motorcycles cost a fortune because of high import taxes, an additional 10% levy has just been slapped on all bikes over 250cc. This rockets the price of a CB750 Honda up to around the $2,700 mark. This sort of vicious taxation could knock the bottom out of the French market which has boomed over the last five years in an unbelievable way until France is now the best market outside America for big machines.

Talk of big machines leads us to talk of safety and in England research into the possibility of fitting airbags to two-wheelers is being carried out at the Motor Industry Research Association's establishment. This research has been commissioned by American interests—by the US Department of Transporta-





Left: World Championship-winning 125 Derbi from Spain is water-cooled, twin-cylinder two-stroke with disc valves. Right: Norton dominated the Thruxton 500-mile race in England, taking 1st and 2nd place. This is winning machine, Dave Croxford riding, which averaged record-breaking 85 mph.

tion—and has obviously been inspired by work in the automobile industry where safety bags which inflate on collision to cushion the occupants from smashing into the windscreen have been extensively tested. The bags stow away on the tank top and are inflated by a small explosive charge on impact. They have been tested in head-on and near head-on collisions using motorcycles supplied by both BSA and Honda, and Dr. Peter Bothwell, the man in charge, reports good progress though he admits that the application for a road going machine is still a long way off.

On the road racing side, the Spanish Grand Prix rounded off the 13-strong World Championship series. So close has the racing been in the smaller engine capacity classes that both the 50 and 125cc titles were decided at the Spanish, held at the traditional course which winds around Montjuich Park over-looking Barcelona—the place where Christopher Columbus spent a lot of his time fund-raising before he set off across the Atlantic. To the joy of the local aficionados, Spain's Angel Nieto clinched both titles riding two-stroke Derbi machines which are made only a few miles from Barcelona. In the 50cc class, which he had to win to outscore last year's champ Jan de Vries (Kreidler) of Holland, Nieto led all the way. In the 125cc, Nieto had only to finish among the first eight riders home and he took it easy, following Yamaha works men Kent Andersson and Chas Mortimer home.

Renzo Pasolini won the 250cc class on his Aermacchi, beating all the Yamahas, but Swiss Bruno Kneubuhler (Yamaha) pushed him down to second place in the 350cc class. Mortimer won the 500cc class riding a 354 works Yamaha but the bigger machine titles had all been clinched before Spain: the 250cc by Jarno Saarinen (Yamaha) and both the 350cc and 500cc by Giacomo Agostini on the works MV Agustas.

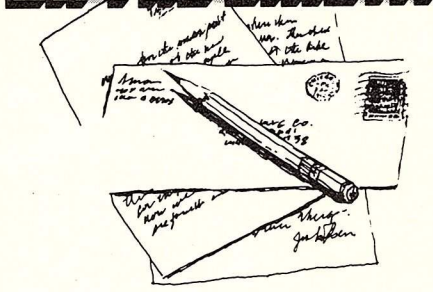
Last of the big long-distance events of the year was the 500-mile race at Thruxton in England. This was a resounding success for Norton whose two factory-prepared 750cc Commando machines took first and second place ahead of the leading Triumph. But the winning Norton, ridden by Dave Croxford and Mick Grant, only just made it. The primary chain broke half a mile from the end: "I was flat out on the tank when suddenly...chunk...no drive. I thought I had another lap to do and that we'd had it but as I coasted around the last corner I saw this bloke in the distance waving the checkered flag at me. So I jumped off and pushed home," said Croxford who last year shared the winning Triumph with Percy Tait. The Norton broke the old record by 5 minutes and averaged 85 mph. •

NEXT MONTH:

* How To "Reed Valve" Your Piston Port
* Do Your Own Pin Striping
* Shape-Up Your Bod For Riding
* Kawasaki/Suzuki Yamaha 175 Enduro Tests

Don't miss February MOTORCYCLIST... on sale January 16

ON THE LINE...



A FIGHTER

If sending money out of this country didn't involve wrestling with the Post Office and the Customs I would send you a check to pass on to the Unconstitutional Helmets Committee.

You folks just don't know how lucky you are to be able to fight the issue in the courts, however expensive it may be. We have had a law here for more than ten years empowering the Minister responsible to impose helmets on us whenever he likes; believe me, if there's one thing worse than compulsory helmets it's the *threat* of compulsory helmets! In July 1971 he announced his intention to impose the helmets and to raise the biker age from 16 to 17 (another thing he was allowed to do anytime he wanted) sometime soon. Last December he raised the age — he excepted sixteen-year-olds already licensed but left several thousand fifteeners who had got their licenses in anticipation high and dry, many of them with expensive and useless bikes.

We have been warned. Now we wait for the helmet law, which, believe it or not, is to apply to Moped riders and pillion riders too. The minister's name, by the way, is John Peyton, so if you want something really nasty to curse by, there's a suggestion!

Good luck in your fight!

Andy Turek
Oxford, England

HE DIGS PUTT

Just a brief note to tell you how much I enjoyed Mr. Scalzo's article on Putt Mossman.

I had heard of him but that's all. There is a picture of him and his wife in Floyd Clymer's, Motorcycles of the World. I was curious about P. Mossman so was delighted to come across the October *Motorcyclist* and discover the article, I read it and enjoyed it and, as I wrote Mr. Scalzo, will reread many times and get much enjoyment out of the article.

Robert Coates
Willingboro, N.J.

CHANGE BARS, CHANGE RIDE

I read with great appreciation your appraisal of the BMW 750/5 in the May 1972 issue of *Motorcyclist*.

There was one point which particularly interested me; your slight criticism of the behavior of the front forks. I believe I can explain the lapse from perfection. As you know, BMW's are sold in Europe with flatter, lower and shorter handlebars than those you ordinarily use in the states, and it is amazing the difference this makes to suspension action and the whole feel of the machine. The rider's body weight is placed farther forward, putting more weight on the forks and causing them to glide more easily. To work as well with the rider sitting bolt upright as in your illustrations, fork action would have to be softened. Another advantage the flat bars has is that steering is more of a movement from the shoulders than actually turning the handlebars. Also one is leaning on the wind and has less of the feeling of being about to be blown off. Try a Bee Em with the short bar sometime.

Roger A. Biddulph
London, England

BMW FAN

Just a short note to say that I really enjoy your magazine (subscribed after having read one issue!) Enjoy your "Touring Tips" though I wish you had more in every issue. Classic articles like the one on the Ariel are tops (nice photography also, especially the color shot).

One minor point on the BMW article by Douglas Armstrong. BMW's in Europe (Germany in particular) do not cost "almost half." I was in Germany in the summer of 1971 touring on a new R75/5 I picked up in Munich, arranged by Butler & Smith, and just for kicks priced the same bike locally. They not only cost slightly more here, but if purchased in Germany you have to shell out 11% tax (you do get this back, however, when you leave the country with the bike!). In case you're interested, I paid about $1400 for mine and this included set up, locking gas cap and safety bar. This same setup in Munich (the cheapest European city in which to buy a BMW) cost approximately $1440 without the extras. My friend and I also priced them around Europe and found all other places higher. By far the best (and of course, most enjoyable) way of picking up a bike is arranging European delivery through a BMW dealer. The service is great, and Europe is made for touring by bike. Even with the revaluation of the money, it's still a heck of a way to go. Fantastic bike for low elevation or high (Alps), one or two

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION
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a.	Total No. copies printed	195,224	228,098
b.	Paid circulation		
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c.	Total paid circulation	77,226	94,230
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	1. Samples, complimentary, and other free copies	937	518
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e.	Total distribution (Sum of C and D)	186,526	219,248
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I certify that the statements made by me above are correct and complete.
Peter Nicolaysen, Publisher

people; makes no difference to the 750! Very fast, good brakes, rugged, good on gas, and reliable—nothing went wrong in my 3 months of riding around Western Europe. Did nothing other than change oil and put in gas (not even a light bulb!).

Larry Gutter
Great Neck, N.Y.

OLDER THAN US

While renewing my subscription to the old magazine I thought I'd take the liberty of dropping you a few lines. It's indeed encouraging to see the old paper taking over what appears to be a new lease on life under the new management and I'm looking forward to the magazine taking its rightful place right in the front rank of American motorcycle magazines. The first issue I ever came across (it must have been about the time of World War 1) was, if I remember correctly, called the "Pacific Motorcyclist & Western Wheelman." A lot of water has gone under a lot of bridges since those days. I have been in the motorcycle business since 1917, though I retired about 13 years ago to indulge in my hobby of collecting and rebuilding antique motorcycles. This keeps me busy and interested though past the "3 score and ten" mark.

One item I'd like to comment on, is your foreword to my friend Maurie Hendry's recently-published history of Harley-Davidson. I enjoyed your comments immensely—and you may find that the ensuing years bear out many of your contentions. In other words—you may have the gift of prophecy! I have just done a review of Maurie's book for the magazine of the New Zealand Vintage Car & Motorcycle Club.

Next year (February 21-22-23, 1973) will see the largest-ever gathering of rare vintage, veteran and antique motorcycles and their owners in the history of the sport, right here in my home town of Christchurch. Preparations have been going forward for some time and even at this early date, entries are coming in from several countries including Australia, England, the U.S. and others, in addition to the large influx expected from every part of New Zealand.

Geoff Hockley
Christchurch, New Zealand

Thanks for the good words, Geoff. Suddenly we feel like young whipper-snappers.—Ed.

VINCENT REVIVAL

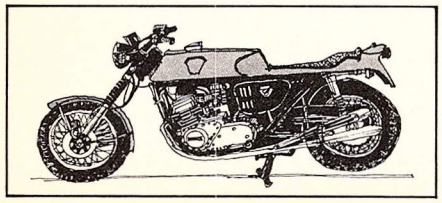
Congratulations on the quality of your new effort, *Motorcyclist.* We are as delighted with it as we have been with all your motorcycle journalism from "Cycle" in 1950 through the great articles you wrote in May '64 and May '65 in "Hot Rod" on the Clem Johnson and George Brown Vincent specials, down to the present.

In the Motorcyclist Hotline, page 8, November issue, was an item about the Courage Vincent Co., Inc. We are very interested in their plans to produce and sell new Vincent engines. We've been active Vincent dealers for five years, enthusiasts and riders for many years, and have a large mailing list of Vincent customers in this country who will, of course, be excellent prospects. If there's going to be a Vincent revival, we want to be right in on it from the beginning. Our question: can you supply the address of the company?

Your assistance will be much appreciated.

Bill Hoddinott
Portsmouth, VA

You can reach them at: Courage Custom Cycles, 4636 E. 14th St., Oakland, CA 94601 or 4140 W. Jefferson, Ecorse, MI 48229—Ed.



HOW TO RIDE DIRT

It may sound like a rather uninteresting subject if you already know how to ride dirt. Further, it might seem a little presumptuous on our part to think that we, the staff of Motorcyclist, are qualified to teach anyone anything. Realizing both of the above, we decided to "import" some talented riders to show all of us, staff and reader alike, how they ride a motorcycle. Personal tutoring from the likes of Malcolm Smith and Barry Higgins should make the subject both interesting and worthwhile to every rider, regardless of his experience.

In case you didn't know, both of these riders are tops in off-road competition, from professional moto-cross to the wilds of Baja California. Both have represented the United States in International competition on several occasions and have the respect of the best riders on both sides of the Atlantic.

Malcolm Smith is even a movie star. His appearance in Bruce Brown's "On Any Sunday" stole the show and did motorcycling a world of good in the eyes of non-motorcyclists. His success in the torturous Baja races and the International Six Day's Trial are legendary, qualifying him to speak with authority when it comes to riding lessons.

Barry Higgins' professional career parallels that of Malcolm, with the emphasis on the rough and tough world of moto-cross racing. While Malcolm's stateside experience was gained in the West, Barry's expertise is the result of riding through the woods and mud of the East. What better team to give the neophyte rider the advice and counsel needed to improve his riding?

Don't get the idea that this series is going to deal with how to go fast. Far from it. Certainly much of what they'll show us and tell us can be put to this end, but the intent is to capitalize on the experience of these two men and return to the very basic techniques involved in riding.

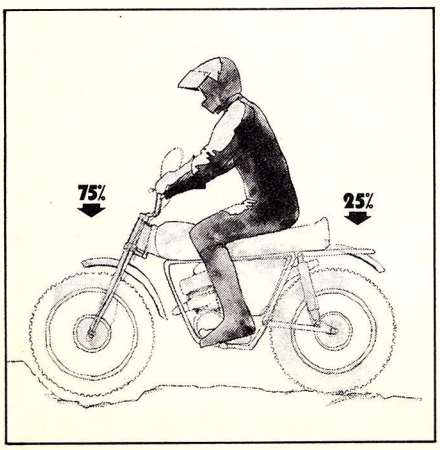
BARRY HIGGINS

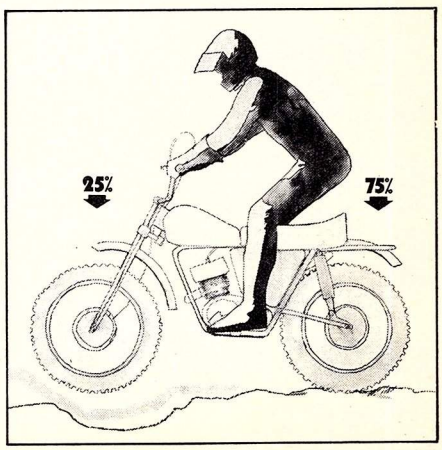
MALCOLM SMITH

The first and most obvious object of all maneuvers is to retain control of the motorcycle. Since the rider himself usually weighs almost as much as the motorcycle, the movement and distribution of the rider's weight will have a significant affect on the behavior of the motorcycle. The weight can be moved toward the front or toward the rear, or in some instances to one side or the other. With the weight movement, the balance point of the machine will change, as will the load on the front and rear wheels.

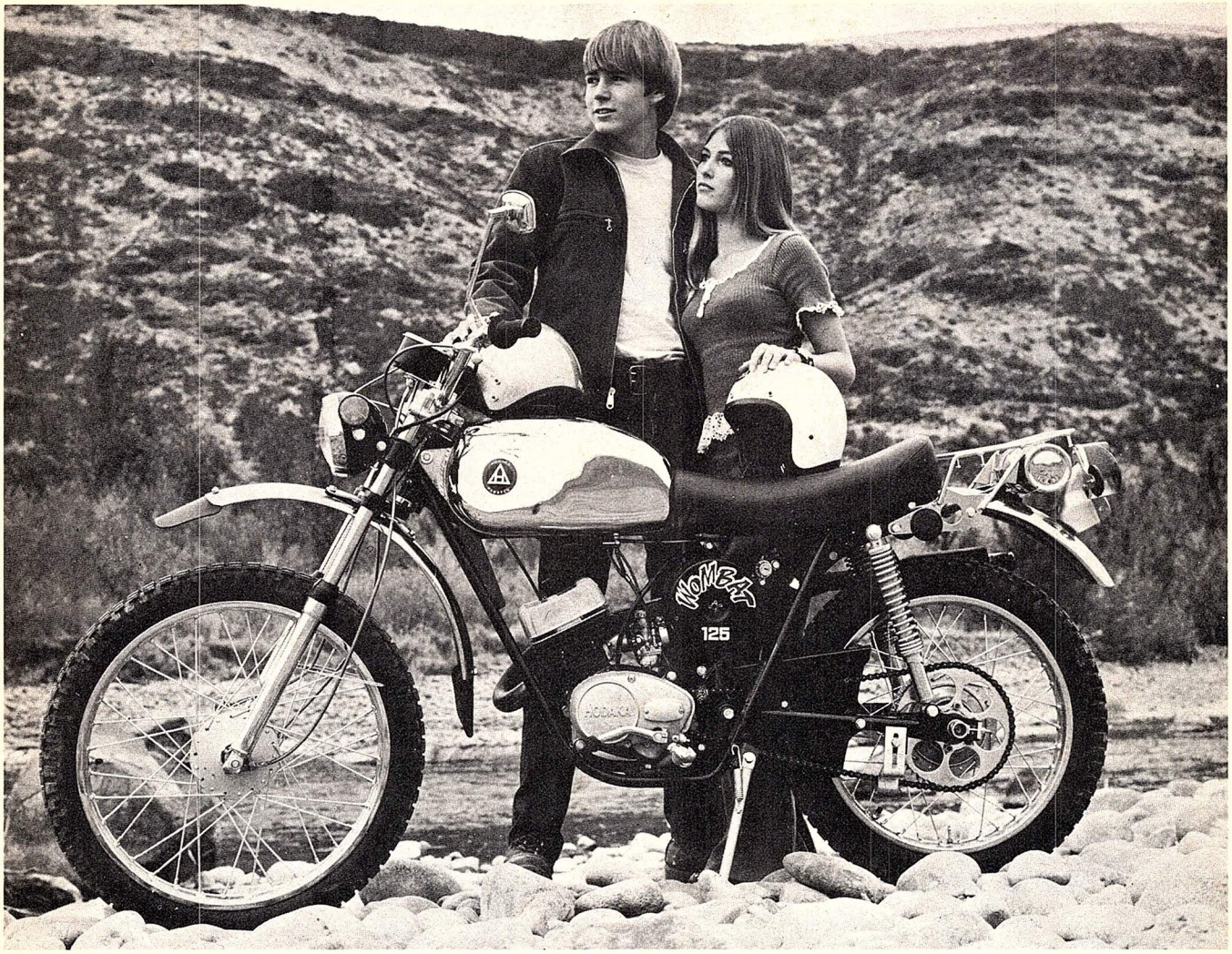
Take for example, a sudden unexpected obstacle such as a chuckhole. The location of the rider's weight at the time the front wheel makes contact will determine the outcome of the encounter. If the rider tries to stop by using one or both brakes, the front wheel will hit the chuckhole heavily loaded (by both the rider's weight and the additional transfer of weight created by the decelerating machine). The result could be a tumble.

If, on the other hand, the rider moved his weight toward the rear of the machine and applied some more throttle prior to contacting the hole, the weight bias would be toward the rear wheel (the rider's weight and weight transfer caused by acceleration) and the front wheel would be much lighter at the moment of contact. The lighter weight would present less of a jolt to the wheel, the forks and the rider, with the result that the control of the machine would more than likely be unaffected. Certainly less affected than an encounterwith more weight on the front.





MOTORCYCLIST



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RACING: CHAMPION MOTORCYCLE CLASSIC

Paul Smart rode a Kawasaki 250 miles to the pay window. $30,000 made it all worthwhile.

By Tony Murphy

By the time the 1972 Champion Spark Plug Classic rolled around, the stage was set for an international showdown on neutral ground, the multi-million dollar Ontario Motor Speedway. While some of the Americans had ridden at Ontario the year before, the full year's layoff minimized any advantage that course familiarity might offer. Riders from England, Finland, Italy and New Zealand represented the best their countries had to offer, among them several who had the right to carry World Champion after their name.

Some of the foreigners, like Paul Smart and Renzo Pasolini, were aboard American-prepared machines. Smart had a Team Hansen Kawasaki 750 and Pasolini was to ride a 750cc Harley-Davidson. John Cooper was back with a genuine English BSA, with Tony Jeffries aboard a similar factory-prepared Triumph. Five times World Champion Phil Read was piloting a 750cc Norton Commando-based John

Player's Special, teamed with the machine's designer, Peter Williams. Most anxiously awaited was Finland's Jarno Saarinen, who had burst on the international racing scene after a couple of years of mediocre performances to grab the World 250 title on private Yamahas. Jarno was riding so well that just two weeks before he had defeated the best 750's the British had to offer in the renowned Race of the Year.

Practice for Ontario began on Wednesday morning at 9 a.m. By 10 a.m., superstar Saarinen was in the hospital having 30 stitches in his right leg, the result of a third-lap crash. That instantly gave the pro-European fans a big IF to counter with if the race outcome wasn't to their liking. By the end of the first day's practice the lap times turned in by Harley's Cal Rayborn gave the visitors cause for alarm. Right off the trailer he was dipping down into the 2-minute, 9-second bracket, a good 2 seconds faster than anyone else. Not, however, faster than Gary Nixon's 1971 best lap of 2:07 aboard a Triumph just like the ones being ridden by Gene Romero and the visiting Tony Jeffries. There was still hope, particularly since it was the first day of practice.

That first practice session gave evidence of the peculiarities of the Ontario course. Even while Rayborn was turning his quick laps, the 750cc water-cooled Suzukis could be seen smoking past him like he had stopped. By a conservative estimate the big two-strokes had 10 mph on the Harley down the long straightaway, but were still 3 seconds a lap slower, due mainly to their camel-like handling characteristics. Jody Nicholas, no stranger to road racing, managed to unload off his "flexi-flyer" no less than twice in the same day. He did it again in the race, suffering a broken collarbone and dislocated shoulder.

The 750cc Kawasakis had been running a dead heat with the Suzukis for bad handling early in the year, but a couple of them had been slipped into some special Colin Seeley frames during the summer. Both Smart and Nixon were delighted with the change while Canadian Yvon DuHamel decided to stick with the earlier version. Whether or not his race crash was a result is not known, but the two Seeley-framed versions ran up front all day, neither rider getting into handling problems. New fairings, reportedly developed in Japan for Kawasaki, were fitted to all three machines in an effort to improve high-speed stability even if it cost some mph. By the second day of practice all of the Hansen team had reeled off some laps in the 2:09's, a speed that Rayborn still could not improve.

The Triumph-BSA contingent were circulating consistently, if not competitively, Cooper bettering 2:12 while Jeffries was still trying to find the fast way around. It may be only 3.8 miles to the lap but nearly all riders admitted difficulty in learning the course layout. There are a couple of sections on the course that require the rider to treat three separate corners as one in order to get around quickly. Unfortunately, the infield section is so barren that there is absolutely no way to be sure where the edge of the road meets the similarly colored gravel just off the road. No color difference, no difference in elevation. The rider just sees a vast expanse in front of him and has to either guess where the road actually goes or put enough practice under his wheels to experiment on each and every section. There was just not enough time for the latter, and Saarinen had already proved the pitfalls of guessing where the road went.

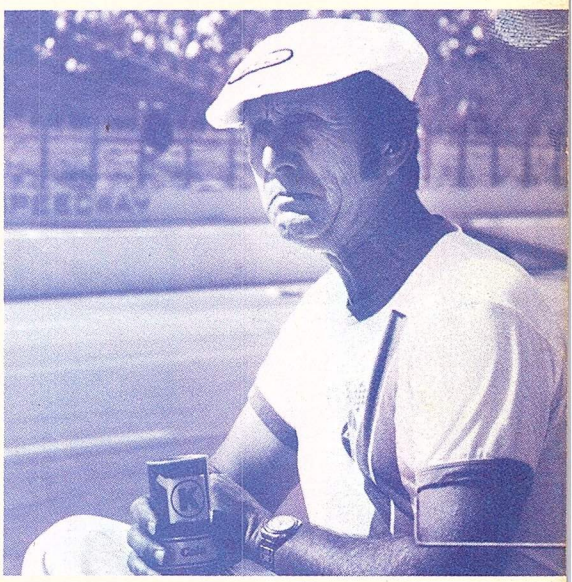
The Read and Williams Nortons were the prettiest if not the fastest machines in the race. Both were lapping in the 12's, with an occasional 11-second round, but that was as quick as they could get them to go. They both ran in the first dozen during the first heat, side by side or nose to tail most of the way, until Read's swing arm-actuated fuel pump came loose and stopped pumping. The fuel tanks are so low on either side of the engine that the pump is required to get the fuel up to the top of the tank above the carburetors. A quick weld job during the 45-minute break got Read back on the line for the second leg, but half way through the pump fell off again. Williams had about as much luck. After replacing the engine sprocket damper during the interval, the hurried installation of the fairing pushed the front brake hydraulic hose against the tire. About half way through the second heat he lost the front brake.

There were a half-dozen private entries doing very well, most notable the Kawasaki of Cliff Carr. This was no ex-factory or under-the-table factory entry, either. The engine had started life as a street machine and was now zipping around Ontario as fast as the best factory racers. In fact, in the race Carr got down in the 2:07's in his successful effort to stay in front of the factory Kawasakis of Nixon and Smart. Kevin Cameron of Arlington Motor Sports prepared the machine for Carr, but the lack of some special crankshaft pieces available to the Hansen Kawasaki team sidelined the machine at the halfway point in the second heat while holding a commanding, steady lead on the field. There's still no substitute for money.

As usual, the bulk of the field was made up of privately entered machinery. These riders have to buy their bikes, pay their own travel and hotel expenses, and be pretty sure of taking a back seat to the big-bucks team efforts. They're the ones who get hassled the most at tech inspection, don't stand a chance of even bending the rules, let alone breaking them, but they show up anyway. Without them there'd be no show.

Fortunately, they're not totally ignored. Both Yamaha and Kawasaki had parts on hand for anyone riding their brand. They weren't free, but at least they were available. Champion supplied free spark plugs, Dunlop and Goodyear free advice and tire changing service. Bell Helmets had a supply of face shields, Bates would patch up your leathers even if they were another brand. There were others, bless 'em, showing an appreciation of the weekend racer.

With practice over and the qualifying heat races ready to begin, it was still anyone's guess as to the eventual outcome. Heat race number one was won by Rayborn's Harley. Number two by the private Carr Kawasaki. DuHamel had led the first heat for half a lap before crashing his Kawasaki, fortunately without injury, but it relegated him to the back of the pack for the start. The qualifying races were only for grid position since everybody entered qualifies, but the fiery Canadian sacrificed a sure front row starting position for the last row trying to win a race that counted for nothing. Not only was he in



Bob Hansen has:
(a) just heard that DuHamel crashed?
(b) just heard that he crashed again?
(c) just heard that Paul Smart won?

the last row but the race was to be started in two groups, the second group starting 5 to 10 seconds after the first to avoid overcrowding on the first few laps. DuHamel had to overcome the riders in the second group as well as the time handicap. Based on past experience, all the riders up front expected to see the flying Frenchman before the race was over. They were right.

As the field strung out behind the leaders, things started happening. Suzuki's Art Baumann crashed. Then Rayborn crashed. Then Suzuki-mounted Nicholas crashed, heavily enough to be taken to the hospital. Romero, who had crashed in the early laps was back in the race after some hurried repairs. Nixon, Carr and Smart were up front. Behind them the 350 Yamahas of Carruthers and Roberts were just about to be overhauled by DuHamel.

Continued on page 24

1919
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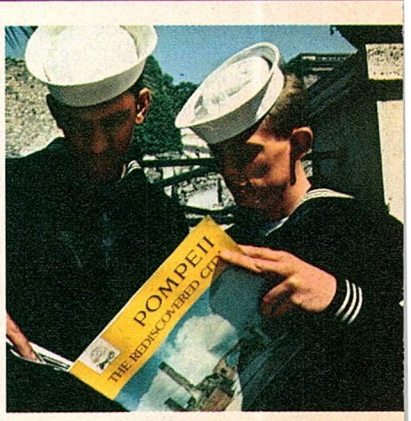
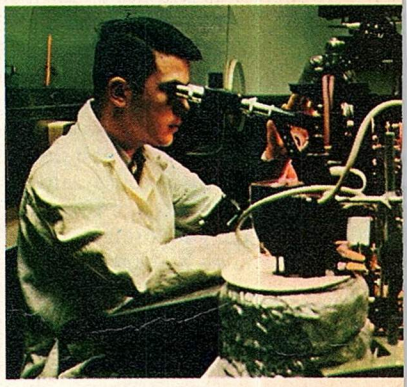
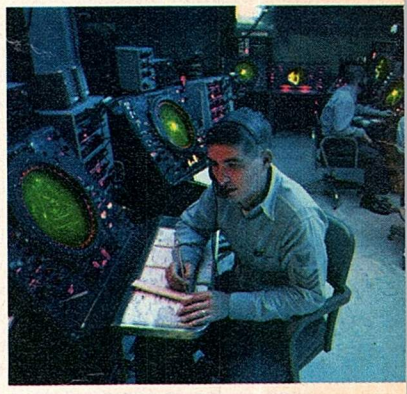
This Navy poster originally appeared in 1919. For a free full-color reproduction, stop by your local Navy recruiter's office. No obligation, of course.

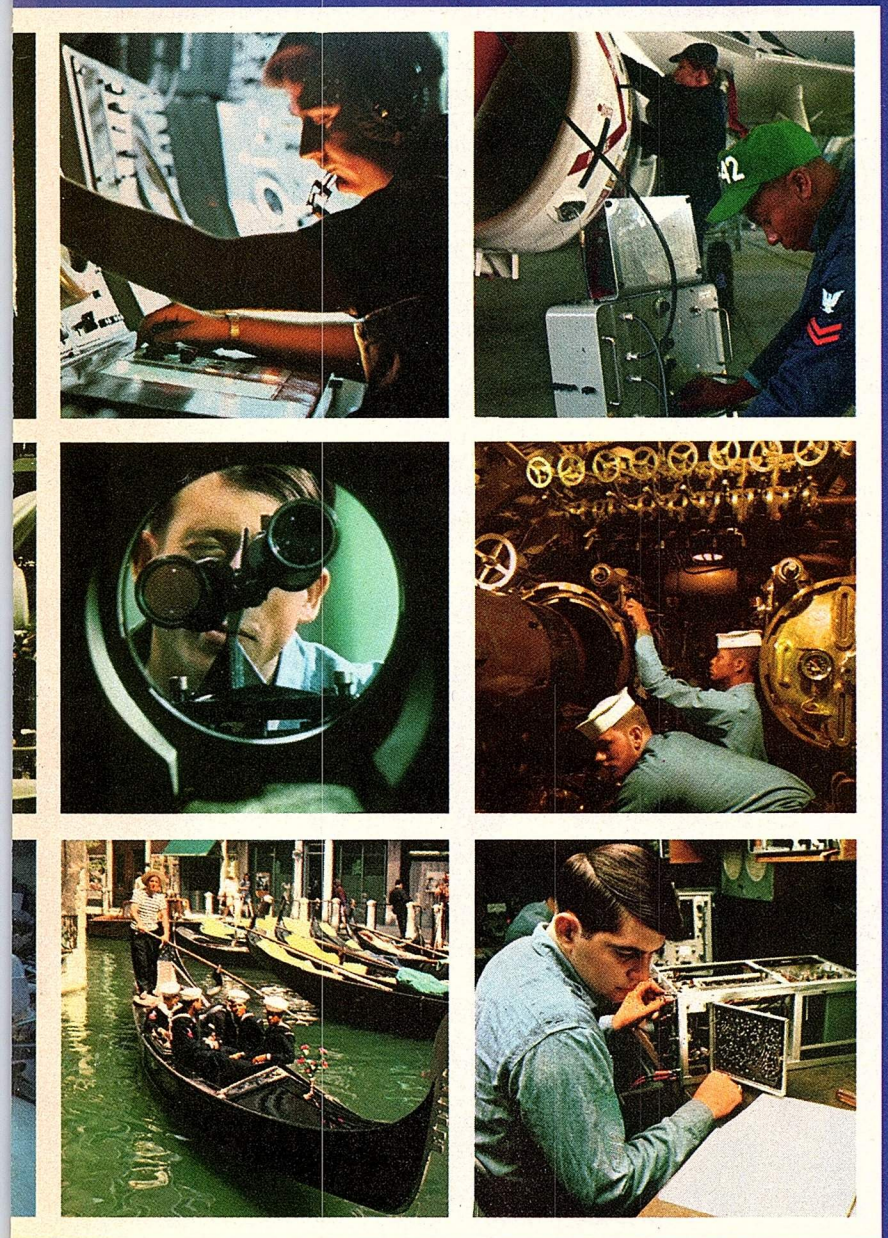
Join the Navy







1972
and find your place in the world



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ONTARIO *Continued from page 19*

Once by them, he was fourth. On lap 12 he passed Smart for third and set out after Carr and Nixon. On lap 14 he was by Carr. On lap 16 he had the lead, Nixon slowing on that lap and pulling into the pits with transmission trouble.

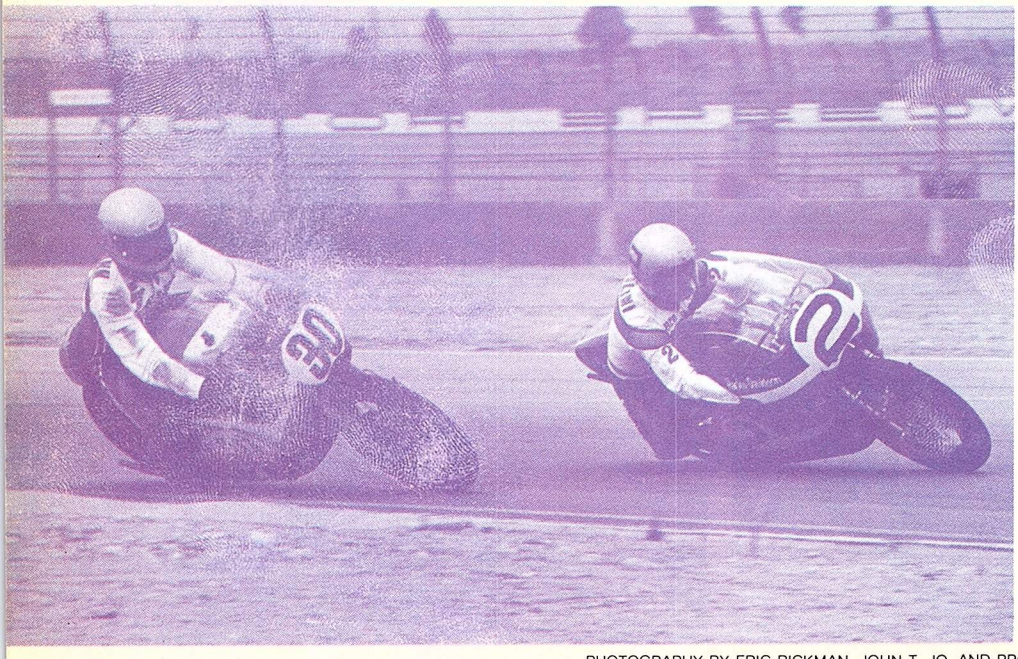
On lap 19, after three laps as the front runner, DuHamel pitted for gas and gave the lead to Carr. Now it was Carr, Carruthers and Roberts. The two Yamahas were expected to go non-stop, so as soon as Carr was called in for fuel they would inherit the lead. On lap 22 Carr was in and Carruthers-Roberts began their friendly team duel for first place, fearing only that DuHamel might overcome his pit stop disadvantage before the end of the 39-lap event. He cut their advantage to about 8 seconds and then again joined the illustrious list of crashers when he unloaded in the infield. That was all. The Yamahas ran away with the rest of the first heat, Carruthers winning it after Roberts made a precautionary stop for fuel just in case. Had Carruthers run dry, Roberts would still have won for Yamaha and they would have known that they'd have to stop in the next and final heat of the main event.

Although the victory brought Carruthers $1200, the race was only half over. There was a 45-minute break between the two main events, allowing the riders to switch tires and make whatever adjustments they felt were necessary to complete another 125 miles. While those fortunate enough to finish the first half of the main event were busy adjusting their machines, the unfortunates like Rayborn, DuHamel and Nixon were frantically trying to make their damaged machines raceworthy. Although they had all finished well back in the first heat of the main, an up-front finishing position in the second event could be profitable. Not only was there a $1200 sum for each heat winner, there was $50 per lap in lap money to the leader. Nixon, who had dropped out of the first heat with transmission problems, had still collected $650 in lap money.

As the field roared away to start the second and final heat, Paul Smart's Seeley-Kawasaki led into the infield and back around to complete lap one. On lap two, Carr's private Kawasaki passed Smart to take the lead, a lead Carr was to hold for the next 20 laps, relinquishing it only when his stock crankshaft had enough. Lap after lap Carr roared around with Smart right on his tail, the pair of them far outdistancing third place Geoff Perry. The second heat lacked the excitement of the first, turning into a parade after just a few laps. This, together with the confusion of who had to finish where to do well in the overall results detracted from the fantastic job of riding being turned in by several big names. Brelsford, who had finished in 11th place after a poor start in the first heat, was locked in a race-long battle with teammate Renzo Pasolini. Carruthers and Roberts, definite favorites for the overall win, had both struck trouble in the first few laps. Roberts was out by lap three with a seized crankshaft, Carruthers in the pits for new plugs before lap ten. He got going again, but was out of the running.

It was Carr, Smart and Perry as gas-stop time approached. Behind them, Nixon, Brelsford and Pasolini. The front four would have to stop, the Harleys of Brelsford and Pasolini would not. First Nixon stopped; then on lap 21 Smart and Perry were in. At almost the same time Smart pulled in, Carr's engine stopped running. Once the pit stops were completed, the running order had really changed. Smart led, followed by Perry, Brelsford and Pasolini. Nixon's stop had allowed the two Harleys up into third and fourth place, positions they were to hold for the rest of the race.

The rest is history. Smart won the second heat and took the overall win. His 5th and 1st actually gave him the same score as Perry's 4th and 2nd, but in the



PHOTOGRAPHY BY ERIC RICKMAN, JOHN T. JO, AND PPC PHOTOGRAPHIC

Above: *Italy's Renzo Pasolini takes the long way around Suzuki's Art Baumann. Baumann crashed while "Paso" brought his Harley home third. Number 96, Geoff Perry from New Zealand, rode water-cooled 750cc Suzuki to a fine second place.*
Right: *Harley riders tried both drums and discs. They used discs in race.*
Middle: *Most innovative area was wheel and tire design. Winner used old fashioned wheels, Dunlop tires.*
Far right: *Hard luck award went to early leader Cliff Carr on Kawasaki.*

event of a tie the rules award the victory to the rider having the best finish in the second heat. Brelsford nipped Pasolini for third in the second heat, but Pasolini's 6th and 4th, were good enough for third overall. Rayborn forced his way through the field to finish 5th, but when combined with his 50th place finish in the first heat he finished way down in 29th place. Carruthers' combined total placed him in 14th place with Cliff Carr two places back.

The attrition rate among the potential winners had been great. The large number of crashes among the superstars was also most unusual, for although they all get off on occasion, it seldom happens to so many in one race. Technical advancements over last year's machinery were few, as evidenced by the fact that the lap times were not any quicker. Tires and brakes, seem to be the most obvious changes, Dunlop squeezing Goodyear out of the picture for the present. Disc brakes are the in thing with most of the teams as well as the private owners. Magnesium spoke wheels are another item beginning to show up on the faster machinery. The DuHamel Kawasaki had them front and rear; the Romero Triumph had one in the front. They're a natural for a disc brake set-up and can use tubeless tires to further reduce the weight over a conventional wire spoke wheel. With the exception of the Hansen Kawasakis and the John Player Nortons, little effort seems to have been spent on aerodynamics, an area that definitely needs consideration as the 750cc speeds increase. Of the major entries, only the Team Hansen crew had made an attempt to improve handling over the machinery used earlier in 1972. The Seeley chassis used by Smart to win the event was in fact his own chassis, as was Nixon's. Both felt that the improvement it offered was worth the price out of their own pockets. Nixon's lap money paid for his, and Smart can buy a whole truckload with the $30,000 he took home for winning the richest motorcycle race ever run. The only way to top that is to come back next year and make it two in a row.

What about next year? Who will be back? How will the equipment have changed based on the results of this first full year of 750cc competition. A year that's found all the major manufacturers, with the exception of Yamaha, campaigning racing 750's. What have they learned from their victories and defeats?

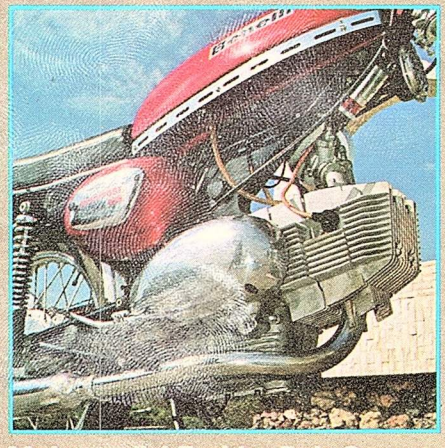
Suzuki started the 1972 season with staggering speed and ill handling. After a go-round with the AMA over illegal cylinder heads, they've come back with legal machines that seem to run just as fast as the first ones but still handle just as badly. They have the distinction of being the fastest machines on the circuit in either a drag race or a flat-out top speed contest, but still cannot lap the trickier circuits fast enough to make them a threat. With such an edge in the horsepower department they can be content to spend the winter devising a chassis that will work. Many of their competition wish that that was all they had to worry about.

Kawasaki had a similar problem but thanks to the efforts of Colin Seeley in England, the Ontario winning machines don't wiggle or wobble, they just get around the corners fast. They have a slight horsepower disadvantage over the water-cooled Suzukis but the superior handling more than makes up for it. They'll probably spend the winter months developing what they now have, hoping for just a little more of the same. As they now stand, they're the ones to beat since they have it all; speed, handling and reliability, plus a couple of the world's best road racers.

Last year's big winners, the BSA-Triumph boys are in deep trouble. The parent company in England has announced that for 1973 they will not support any racing, leaving the American division of Birmingham Small Arms with the chore of further development of their three-cylinder racers. While their machines set the pace in 1971, they could

Continued on page 70

BENELLI
250 SUPER SPORT



Motorcyclist Test by Bob Greene

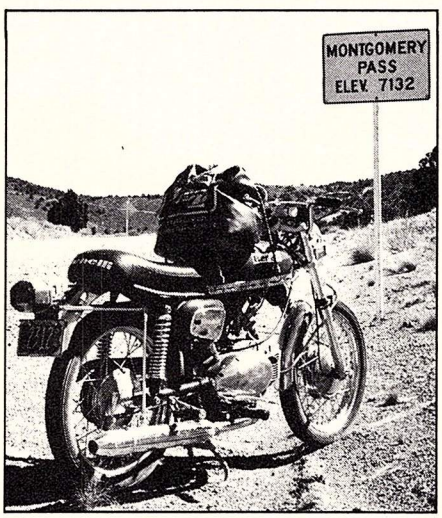
"It's Benelli—B-E-N-E-L-L-I—damn it! You still never heard of it? Just believe me; it's one of the oldest motorcycle manufacturers in the world—early Harley vintage." After the first month of testing the '73 Benelli 250cc Super Sport I felt like having the above quote printed on little cards to pass out at each road stop. For despite having been in the forefront of European industry and road race competition for over five decades, this pioneer Italian manufacturer might as well have been the latest concoction from Taiwan as far as the average young biker is concerned. And what a pity. For this overhead valve pushrod single excels in almost all of the major areas of consideration: handling, lightness, durability, fuel and oil economy, ease of maintenance, touring performance and stopping power.

Aware of many of the Super Sport's virtues through previous familiarity dating back to a 1968 test on a near-identical 250 Benelli Barracuda model, the durability and touring performance aspects of the above claim bordered on speculation until mid-August of 1972. On a Friday, the day before the Bonneville Speed Trials began, this jumbo rectangular box arrived in "the mail" from Benelli Distributor Cosmopolitan Motors in Hatboro, Pennsylvania. Unpacked and set up by the next afternoon, the shiny Candy Maroon Super Sport was obviously destined to languish in the garage for a full week until my return from the Speed Trials. Plans had already been made to ride another test bike, a two-stroke twin, to Bonneville, playing catch-up with *Motorcyclist* photographer Eric Rickman who left for the Salt in a Datsun pickup the day the Benelli arrived. But destiny went down the drain when it was realized that, due to two 125-mile stretches between gas stops along U.S. Highway 6 and Alternate 50, the two-stroke, with a 35 mpg mileage hang-up and 3-gallon tank, would never make it to Bonneville. Figure it out; that's two 15-mile walks. Quick calculation on the Benelli's to-work-and-back fuel consumption on Monday showed that it was getting a whoppin' 75 miles per gallon! And although it, too, had only a 3-gallon tank, because of such commendable efficiency its cruising range appeared to be 225 miles, a near-unbelievable 120 miles more than the two-stroke twin originally—futilely—being groomed for the trip. There was no choice to be made; despite the lack of an opportunity to shake it down, the Benelli Super Sport would have to replace the twin for the lonely 15-hour shot into the wilderness.

12:30 midnight the following Tuesday, with only an aerosol can of Chain Life taped to the handlebar, a tube of GE Silicon Seal in the toolbox, a roll of half-used masking tape slung over the steering damper knob, a 6-inch Vise Grip in my pocket and a 2-foot-square Webco bag full of clothes atop the gas tank, the Super Sport and I got it on in the moonlight, destination Wendover, Utah, 700 miles distant—non-stop. No parts truck or camera car brought up the rear; only the staff's best wishes, tenderly personified the day prior to departure when they were caught during a coffee break sticking pins in a big wall map of the United States, and making wagers as to where the little bambino and I would toss in the towel.

It's all history now; not only did I win their wretched pool but the Benelli ran like a jewelled watch, through the night and long into the next day, cruising at a steady 70 mph. Not so much as a wiping rag touched the bike for the entire journey. Only at Tonapah, Nevada—about 400 miles out—was the rear chain treated to a shot of Chain

PHOTOGRAPHY BY ERIC RICKMAN AND BOB GREENE



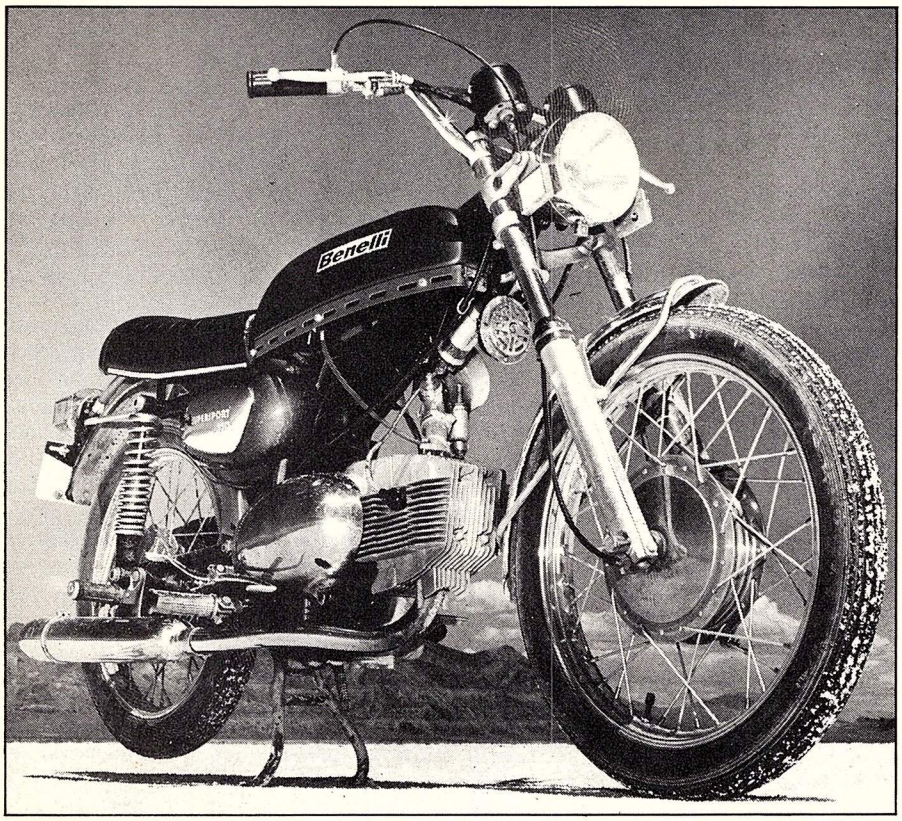
Out-of-the-box 250 thrives on non-stop 700-mile break-in test.

Life; no adjustment was deemed necessary. Right up to here I might have half-agreed with some oaf who insisted 250cc was too small for touring, or that a pushrod single wasn't exactly the cool way to go. He gets a deaf ear from here on out, for unless a rider is determined to dial-on the big numbers—cruise 80-90 mph—a solo rider could hardly have asked for more, the only other exception being a more posh ride that would come with a larger bike's longer wheelbase. Personally, I enjoy a leisurely cruising gait of 70 since it allows at least a little time to digest the scenery. As for the Super Sport saddle's toll on the rider's posterior, it wasn't half bad; although it isn't exactly a davenport, there was no real cause for complaint after a day and a half. The fact that the chassis was fitted with passenger pegs allowed the rider to stretch out and move around quite a bit to preclude cramps or soreness during those long hauls through Nevada's seemingly endless "Indian Country."

For typical of a smaller machine, the Super Sport has a fairly short wheelbase—48½ inches—which, combined with its spartan suspension, imparts a quickness of movement, both vertically and laterally, which requires only an initial period of familiarization from a rider accustomed to a larger mount. Through strong three-quarter winds in the desert the first night out, there was admittedly a bit of a-ship-in-a-storm action going on; nothing frightening, just occupying. If Benelli would add a couple of inches between the wheels, plus another inch or so of suspension, I'd look for an improvement in high-speed running over occasionally choppy pavement, for only under such circumstances as these could chassis performance be faulted. About town and through the mountains, the bike can be thrown into a corner with alarming agility, with only the rear muffler tip grinding out a warning. Angle it up or you'll wear it through, especially when riding two up. Also in the area of the chassis, more cross-up would improve maneuverability when see-sawing the Benelli in a tight parking situation.

Long before the two of us arrived at the outskirts of Wendover, I had the Benelli's number as far as top speed was concerned; although it will indicate over 90, I'd give it an honest 85 mph. Cruise it 70-75 all you wish. It's a happy engine at all speeds, due to a good balance factor that keeps the vibes at a low level and not the least objectionable. At no time during this extended ride was there the slightest numbness of hand, the only real barometer of compatibility between engine and human body. Nor was there the slightest sign of heat or distress, no matter what the speed, the altitude or any amount of crowding with the throttle. Seven-thousand-foot Montgomery Pass, just out of Bishop, California, was taken in high (fifth) gear at an average indicated speed of 65 mph. Likewise for several other equally lofty passes, including 7316-foot Murray Summit in Humbolt National Forest just outside of Ely, Nevada.

The smile of confidence that came with the first dawn, and feeling of well being following breakfast at Bishop, had broadened into a big grin long before the valley of the Great Salt Lake came into view that same afternoon. Or maybe it was the satisfaction of having won the *Motorcyclist* pool as the front wheel crossed the city limits of Wendover. Whatever, curiosity overcame appetite, and immediately upon untying the Webco bag in front of the motel, spark plug, oil level and chain tension checks were conducted before the engine had even begun to cool. I was



Defiant and untouched after 700 miles under the whip. Cylinder attitude allows ideal near-straight exhaust, maximum head cooling. Dellorto carb's fuel line pipes were undersize, required new wire-wound, stronger lines to stop leakage. Air filter is archaic wire mesh, should be plastic foam. Lights and brakes were first class. Throttle reel has tiny chain to prevent cable breakage.

amazed. Electrodes on the plug were still visually as sharp-edged as new. Plug gap was as tight a .025 as when we left home. The oil level was still crowding the full mark, consumption negligible. Only chain tension—still in a non-harmful condition—gave a clue to the past 15 hours of extended running. Oh yes, add the inevitable purple hue around the header pipe and some tan darts of hardened mud encountered in the equally inevitable 15-mile detour that emphasized the inadequacy of the sporty little chromed front fender.

Very frankly I couldn't have been more pleased with the Super Sport's achievement and performance had its cost been three times the $869 suggested retail price. After this unusual ordeal it was in need of only a point regap and chain adjustment to make it spot-on, normal attention within the first 1000 break-in miles. Oh, yes; the headlight low beam went out, presumably due to a loose connection in the dimmer switch. These wiring terminals are secured with tiny screws, which is acceptable once you realize this and make sure they're all tight, after which a dab of GE Silicon Seal should be applied to prevent their backing out. There is also an electrical junction block beneath the gas tank which should receive the same attention. No big deal; just a matter of insurance.

The Benelli's economy qualifies it as a genuine touring mount; and as such its weight ranks with many a stripped off-road lightweight: 258 pounds brimming full of gas, on *Motorcyclist's* own certified scale! That's 42 pounds lighter than last year's Suzuki 250cc Savage and 47 pounds lighter than a 250cc Honda Enduro single! And the Benelli includes two toolboxes, one for the factory tools and one for yours—nice. So the next time someone tells you they can't build an off-road four-stroke of competitive weight, remind them of the Benelli which, shed of its electrics, passenger peg brackets and pegs, etc., would surprise some of our so-called dirt-ready two-strokes in the weight department. Here's a 250 that weighs more like a 125.

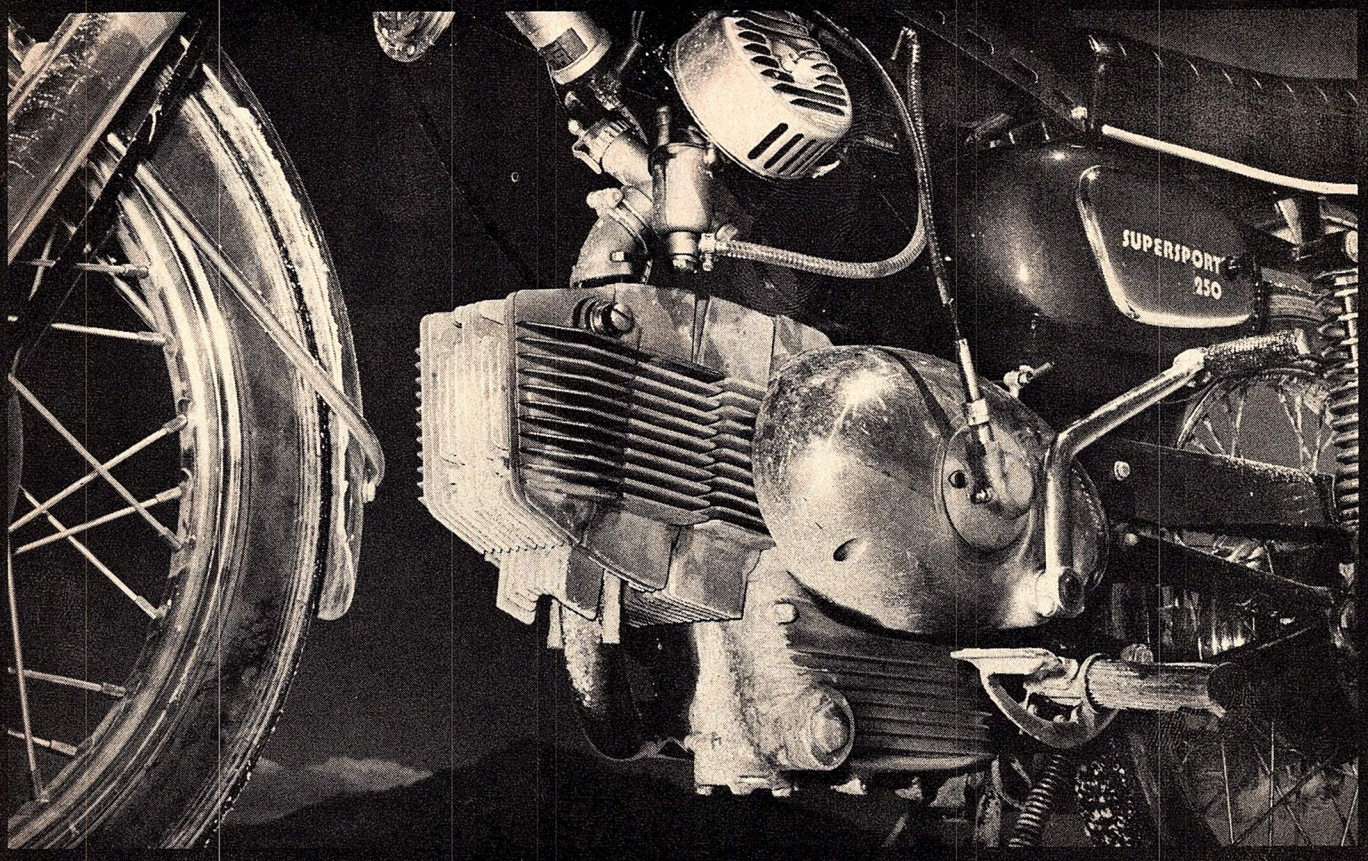
Chassis-wise the Super Sport is different in that it employs a backbone-type frame of rectangular steel cross-section, eliminating the need for conventional front downtubes—ala Vincent. This design complements Benelli's horizontal cylinder attitude, and that's got its virtues, too. Weight is thereby lowered to maximize the center of gravity, and the hottest part of the engine—the cylinder head—is directly facing the breeze, an ideal situation whereby airflow is directed first upon the combustion area and then equally around the cylinder proper. Think about it; there is no back side to a cylinder in this position. Another point of consideration is the use of Allen screws in the engine cases rather than Phillips screws.

The engine is utterly simple, with integral five-speed gearbox and geared primary drive. Being of wet sump design, a single oil source supplies engine, primary and box; pull the dipstick, top it off, and that's it—one oil, one filling, and even that's a mighty rare occasion as I found out. Access to the large fine-screen oil filter is through the lower left side of the case; adjacent to it is a gear-driven oil pump. Possibly the most unique and commendable feature of the engine is the oil pressure routing; through the hollow cam followers and pushrods to the overhead rockers! Really trick. It's a ball and roller bearing engine, with a roller on the big end of the rod. Gearshifting is crisp and positive, employing a heel-and-toe lever that I came to prefer over the conventional toe-only setup. It also eliminates scuffed toes on your dress shoes.

What's wrong with the Benelli Super Sport? Mighty little. Dealers are short—that's most of it, but a test run on a parts order got them from the east coast to L.A. in 48 hours, 45 minutes. Cosmopolitan distributors says they can beat that, and I think so too. And the engine is so straightforward that any mechanic worth his salt should have an easy job of it, especially a Harley wrench used to their very similar 250 and 350 single.

And although it is a street machine, I think it needs a skid pan, or semblance of one, to protect the oil pump cap just in case a rider should take an off-road excursion, on purpose or otherwise. Also you'll find that the rear axle adjuster brackets are too flimsy and prone to gradual distortion due to driveline forces. A double stirrup bracket of conventional design is all that's needed. Perhaps one of the Japanese types could be substituted, or a flange welded on the existing ones. You won't notice it for a long time, but eventually they'll tweak a bit.

Otherwise it's a honey. The smallest person can reach the ground with ease. It features excellent drum brakes and the engine runs strong and long, without a whimper. Starts are easy, gas and oil economy out of sight. And if you quarrel with that new tank styling and perforated skirt around the bottom edge, you're picking a bone with Alejandro de Tomaso of Pantera auto fame. In addition to Ford's special car stylist, he is now top man at Benelli, and you're going to be hearing a lot from this factory in the immediate future now that their wild new 6-cylinder machine is here! Here's your chance to sample it—one cylinder at a time. Better have a go at the Super Sport. It won't take *you* 700 miles to make up your mind; I just got carried away. •



Benelli 250 Super Sport

ENGINE

Engine Type • Four-stroke. OHV pushrod single, horizontal type
Serial No. • 5-5527
Displacement • 250cc (245.1cc actual)
Bore and stroke • 74mm x 57mm
Claimed hp @ rpm • 21 @ 8200 (@ rear wheel)
Compression ratio • 8.5:1
Carburetion • Dellorto 24mm (UB 24 BS)
Air Filtration • Wire mesh
Ignition • Flywheel magneto
Electrics • CEV
Battery • 6-volt, 9-amp
Lubrication • Wet sump, geared oil pump
Exhaust system • Brevetti "Silentium" (Burgess-type)
Starting system • Kick starter, left side

DRIVE TRAIN

Primary drive • Helical gear
Clutch • 7-plate
Transmission • 5-speed
Internal gear ratios • First, 3.166—Second, 2.010—Third, 1.529—Fourth, 1.162—Fifth, 1.000
Shift pattern • Up for low, right side
Final drive • Chain 1/2" x 5/16"

CHASSIS AND SUSPENSION

Frame • Box-section backbone-type
Rake and trail • 26°—3 1/2 inches
Head angle • 26°
Forks • Marzocchi spring/hydraulic
Shocks • 2-rate spring/hydraulic, 3-way adjustable
Brakes • Internal expanding—7 1/4 x 1 3/8-inch front —6 7/8 x 1 3/8-inch rear
Rims • 18-inch steel
Tires • Ceat 3.00 x 18 rear, 2.75 x 18 front. Rib tread
Tire security bolts • None

DIMENSIONS AND CAPACITIES

Wheelbase • 48 1/2"
Length • 74 1/2" tire to tire, 78 1/2" overall (inc. taillight)
Seat height (unladen) • 29 1/4"
Peg height • 10" (unladen)
Ground clearance • 5 1/4" (unladen)
Weight, wet • 258# full gas
Weight bias (F-R) • 113# front, 143# rear
Weight with test rider • 458
Tank capacity w/reserve • 3 gals.
Oil capacity • 2 qts.

STANDARD EQUIPMENT

Speedometer • 100 mph Veglia
Tachometer • 10,000 rpm Veglia
Turn signals • None
Ignition lock • Yes
Fork lock • None
Side stand • None (Center stand only)
Skid plate • None
Steering damper • Yes, Friction type
Built-in spark arrester • None
Kill button • None
Passenger seat and pegs • Yes, folding pegs
Tools • Yes, two toolboxes
Colors • Candy Wine Red, also Orange & Green

PERFORMANCE

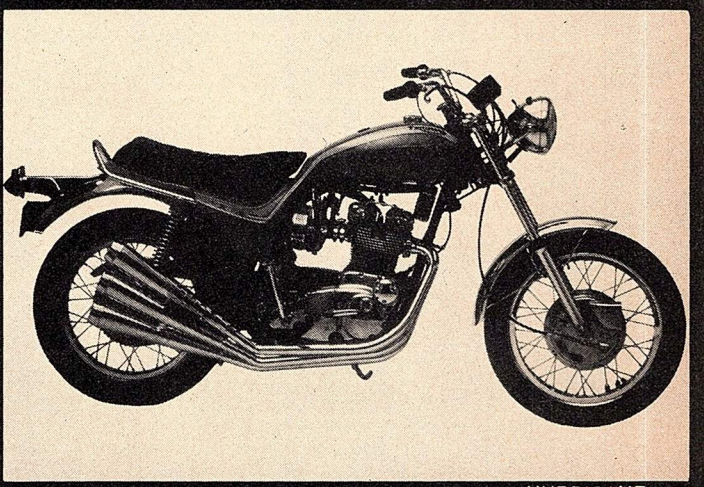
Gas mileage • 75 miles per gallon maximum
Indicated top speed • 90 mph
Actual top speed • 85 mph

SUGGESTED RETAIL PRICE $869.

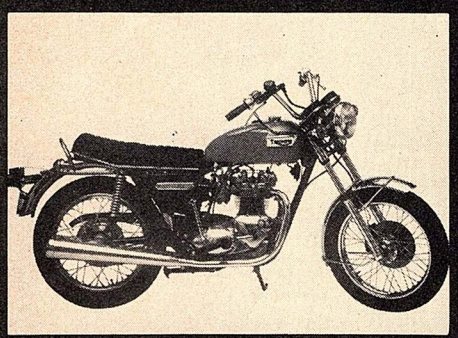
1973 NEW

BSA/TRIUMPH:

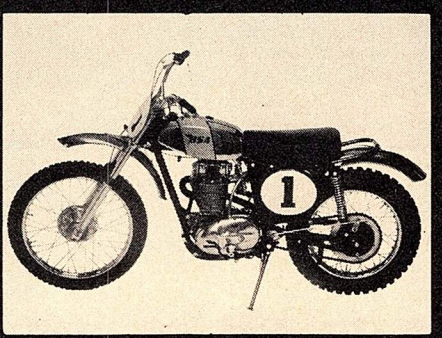
Hurricane X-75 features Triumph performance and handling in a distinctive custom package designed by Craig Vetter. It's powered by a 750cc OHV triple with three 26mm Amal carburetors. Only 1200 of these 5-speed, 57-inch wheelbase X-75's will be available in '73 at $2300 each. Bonneville, the most popular Triumph model, is now motivated by a 750cc vertical twin powerplant with mating 5-speed gearbox. Increased top speed potential is safely dealt with by a new Lockheed front disc brake. Seat height has been lowered on the 56-inch wheelbase, 390-pound roadster to a more comfortable 31 inches. Price is $1600. Victor MX comes trail ready out of the crate. Engined by a big 499cc single, it has ample low end torque for flexible off-road performance. The 260-pound, 4-speed, 54-inch wheelbase dirt charger sports a 21-inch front wheel and is equipped with a USDA approved spark arrestor. Tiger for '73 proves that a machine with power can be practical too. Hill-leveling torque is effortlessly emitted from 750cc vertical twin while smooth Amal single carburetion miserly squeezes out more miles per gallon. How much does the disc braked, 56-inch wheelbase, 5-speed Tiger cost? An economical $1550. Trophy Trail is Triumph's new triple-threat machine. It's legal for the road, trail and ready for enduro competition. A 500cc OHV twin engine, 21-inch front wheel, weight saving siamesed exhaust pipes and total poundage of 330 make it a true multi-purpose bike. The 54¾-inch wheelbase 4-speeder sells for $1425. Trident, Triumph's awesome 750cc three-cylinder OHV roadburner, comes equipped in '73 with a race proven Lockheed front disc brake and a heavy-duty 5-speed transmission. This 58-inch wheelbase, 460-pound stylish bullet retails at $1850. Daytona is subtly updated for '73. The gas tank, slim lined for looks and knee clinging comfort, now features eye-pleasing seamless construction. Brake and clutch levers have been reshaped for a more natural grip, while a new taillight adds safety. Price: $1350.



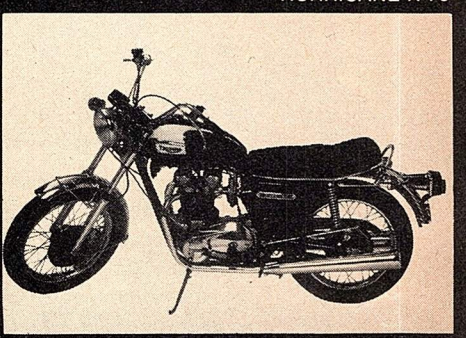
HURRICANE X-75



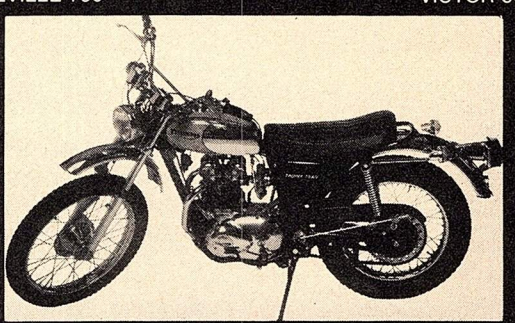
BONNEVILLE 750



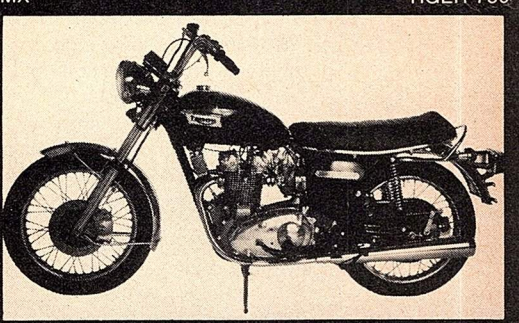
VICTOR 500MX



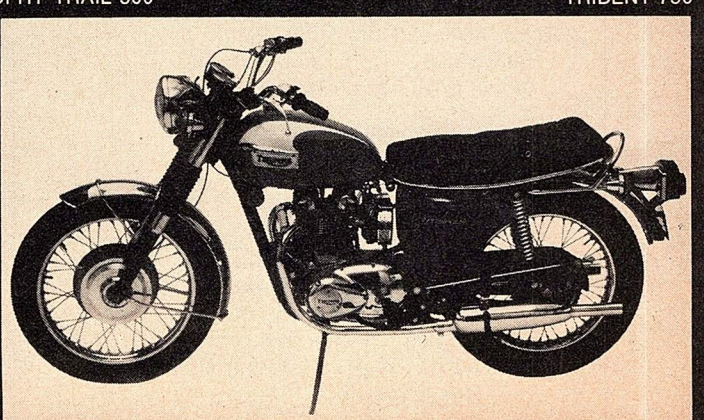
TIGER 750



TROPHY TRAIL 500

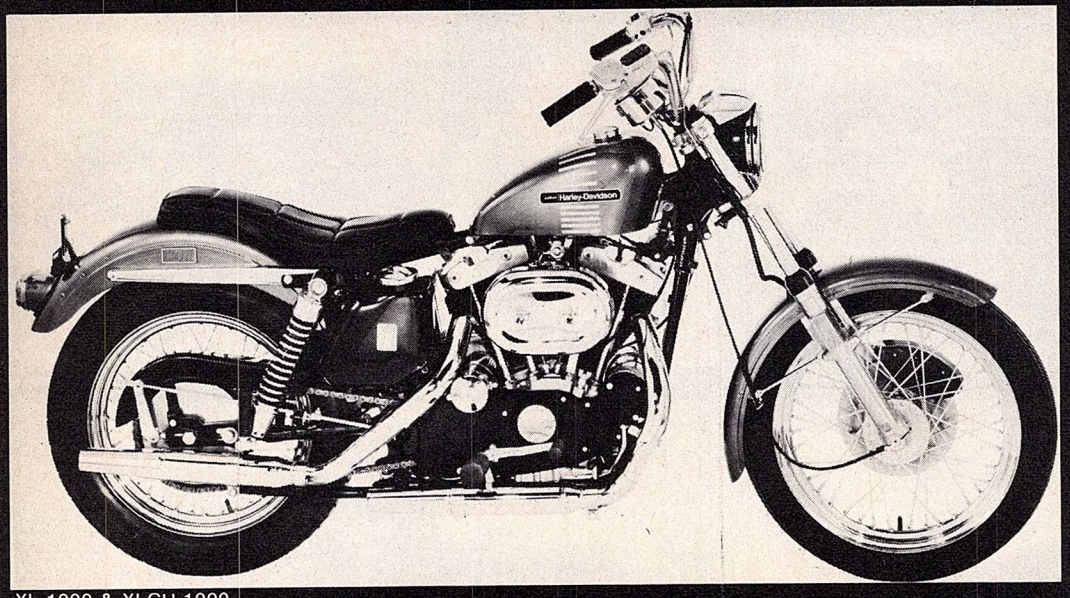


TRIDENT 750



DAYTONA 500

MODELS

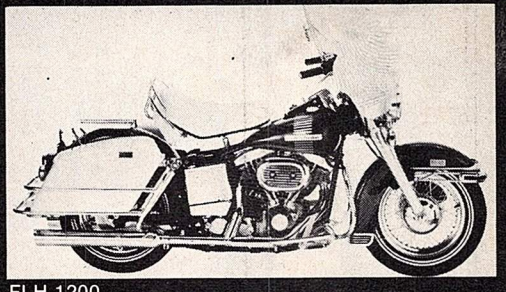


XL-1000 & XLCH-1000

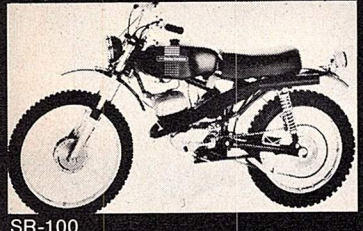
brakes as the FX, but is fitted with "King of the Road" appointments. It's big, stable at 722 pounds. Harley-Davidson's SR-100, one of the toughest battlers in off-road competition, is tougher yet. Standard on the two-stroke 98cc single is full night lighting, 21-inch front wheel, Ceriani forks and 11½ inches of ground clearance. The 52-inch wheelbase, 5-speed, 228 pounder has a tuned exhaust with AMA complying sound level. Both the SS and SX-350's share the same 56-inch wheelbase frame, 344cc OHV single and new 5-speed gearbox. SX has high pipes, SS has

X-90

FX-1200

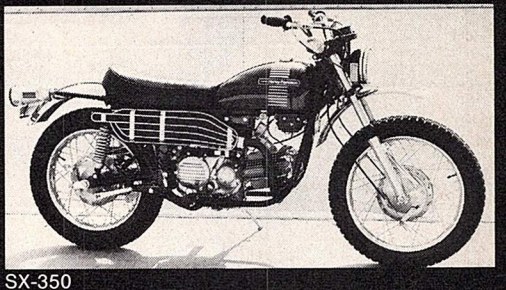


FLH-1200

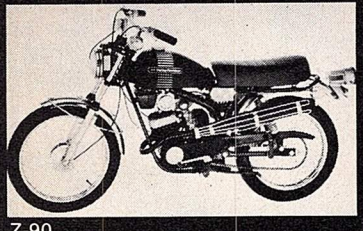


SR-100

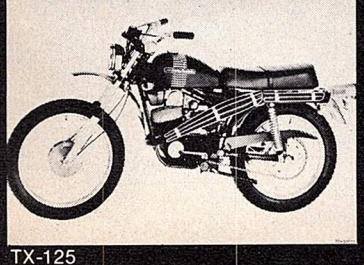
SS-350



SX-350



Z-90



TX-125

HARLEY-DAVIDSON:

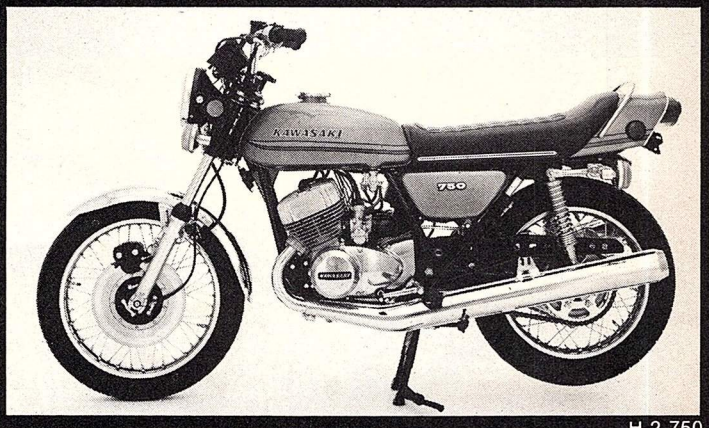
Harley-Davidson's 1000cc OHV V-twins, the XL and XLCH, have even better total performance for '73, featuring new sure-stopping front disc brakes and staggered dual exhausts which complement the looks of the 4-speed 58½-inch wheelbase beauties. While the XL is equipped with electric start, the CH employs the kick method. HD's X-90cc is a two-stroke minibike with a 4-speed trans. A new spark arrestor allows safe forestry riding. Harley's FX-1200 has leaner styling with the addition of a smaller, sleek gas tank and a pair of independent muffler pipes. Two 10-inch discs, one front and rear, stop the 1200cc V-twin 4-speeder effectively. Wheelbase is 62¾ inches, weight is 543 pounds. The '73 FLH-1200 uses the same proven engine, trans and low; both weigh 355 pounds. Harley's Z-90cc features an oil-injected two-stroke single coupled to a 4-speed box. A concentric carb ensures smooth running. Wheelbase is 46½ inches, weight 183. TX-125cc main features are improved styling and better performance. Single cylinder, 232 pounds, 49-inch wheelbase, it handles. The TX-125 also comes with two rear wheel sprockets and wide ratio 5-speed.

KAWASAKI:

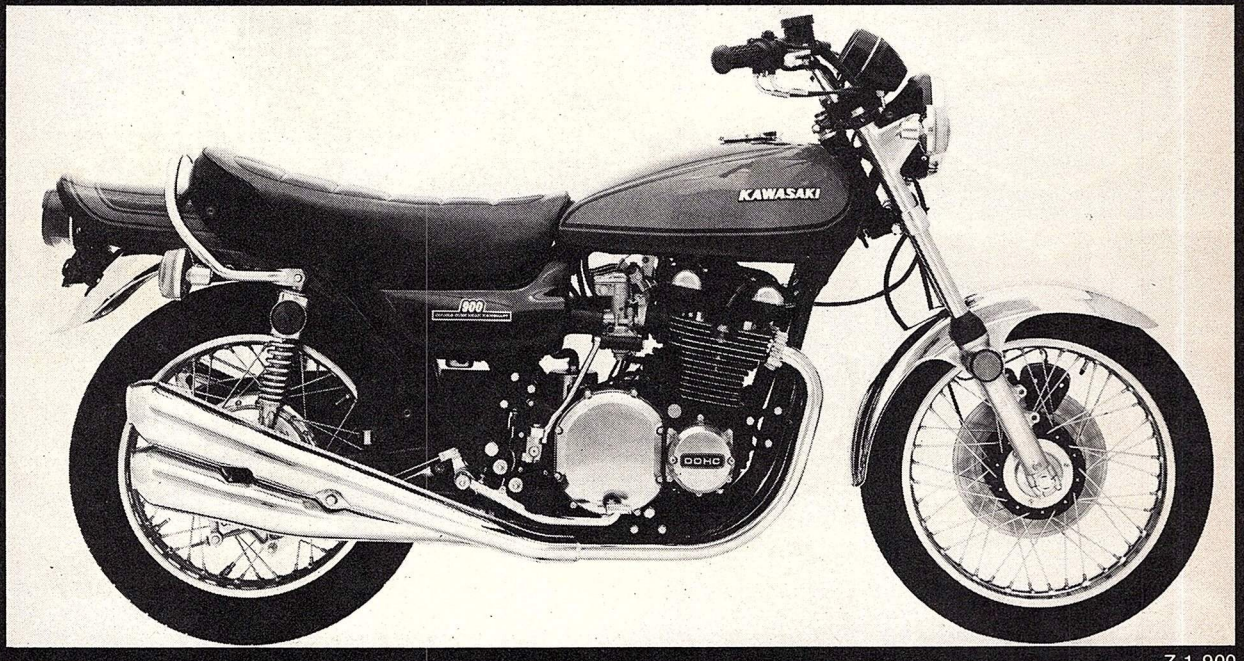
Kawasaki's 1973 S-1 two-stroke is the only three-cylinder 250cc motorcycle on the market. Developing 28 hp at 7500 rpm and 19.5 foot-pounds of torque at 7000 rpm, Kawasaki claims the S-1 will zip through the quarter in 14.7 seconds. Top speed is advertised at 100 mph. With a wheelbase of 52 inches and a dry weight of 330 pounds, the 5-speed S-1 should be highly maneuverable. 1973 H2. 750cc of two-stroke triple produces 71 hp and sub-12-second strip times. Light at 422 pounds dry and a close ratio 5-speed box help to make it a missile. Sturdy double cradle 56-inch wheelbase frame keeps the Mach IV aimable. G-3 rotary valve 90cc single with 5-speed trans and street legal lighting is a delight to ride. Only 178 pounds, the 45-inch wheelbase G-3 handles. Z-1 *is* here. Z-1, powered by a 903cc DOHC four that revs out 82 horses at 8500 rpm, tops out at 130 mph and blitzes the quarter in the low 12's! Although heavy at 506 pounds dry, 3.54 inches of trail make it easy to handle once moving; 58.7-inch wheelbase helps steady the monster bike. Has a 5-speed gearbox. Kawasaki S-2, 347cc of two-stroke 44 hp fury. Makers claim a top speed of 105 mph from the 5-speed triple. A 52½-inch wheelbase and 4.3 inches of trail make the 335-pound S-2 track stable. H-1 Mach III is even faster in '73 with CDI electrics. Handling improvements abound with new frame, rear shocks and springs. The 500cc triple retains its 5-speed tranny and 12-second quarter-mile times. All Kawasakis are guaranteed for six months.


G-3 90


S-1 250



H-2 750

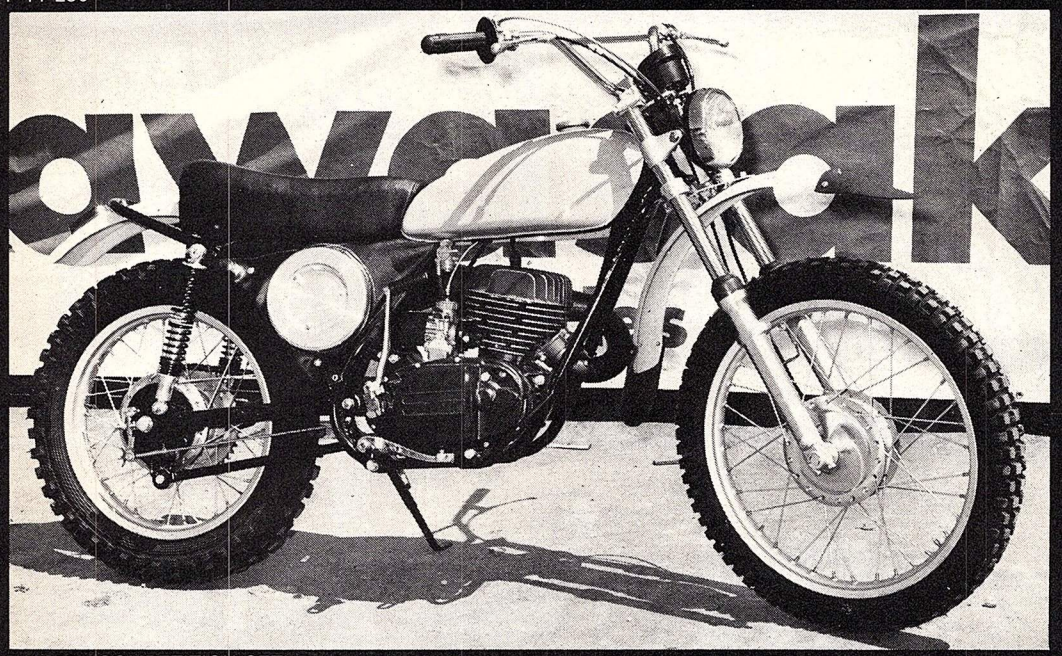


Z-1 900

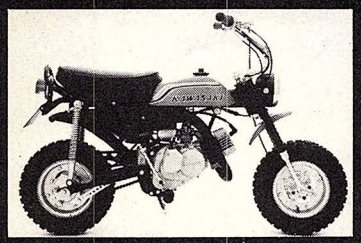

S-2 350

H-1 500

F-11 250



F-11 250 COMPETITION SETUP

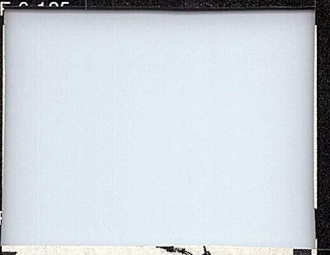


MT-1 75

All new for '73 is 'Saki's 250cc piston port enduro. Single jug churns out 22 hp at 6500 rpm which is good enough to propel the cycle to 78 mph. Weighing 268 pounds and with a 55-inch wheelbase, the F-11 is right at home in the dirt or street. Another 5-speed F-11 is shown set up for serious enduroing. U.S. Kawasaki's super minibike, the MT-1 is a 121-pound, 39-inch wheelbase, two-wheel stormer powered by a 73cc two-stroke single pumping out 5 hp at 6300 rpm. A 3-speed shift with automatic centrifugal clutch relays engine torque to a 40 mph maximum while folding bars, positive seal gas and oil caps plus auto oil injection make MT-1 transport and operation sanitary. G-5, a 5-speed, 50-inch wheelbase, 100cc enduro, whizzes to a max 66 mph and climbs grades up to 33 degrees. Magneto ignition, Superlube auto oiling and adjustable rear shocks are standard equipment. A light 195 pounds are pushed by the rotary valve single. G-4 has identical specs as the G-5 except for a two-inch-shorter wheelbase, three pounds more weight and a ten-speed gearbox. A handlebar mounted lever switches the gearing from high to low range. Five foot-shifted speeds are in each range. The G-4 can climb a 40-degree hill in the low range and a 29 in high. It's a versatile trail machine. F6 is a 125cc rotary valve engine enduro which hits 69 mph through a 5-speed box, 14½ hp and 10 foot-pounds of torque. A 52-inch wheelbase and weight of 231 pounds allow easy plonking. Kawasaki's F7 & F9 enduros both feature 5-speeds, rotary valve mills, six-way adjustable Hatta forks and five-position rear shocks. F7 zips to 75 mph via 17 hp and weighs 233 pounds. F9 streaks to 85 via 28 ponies and registers the scales at 279 pounds.

G-5 100

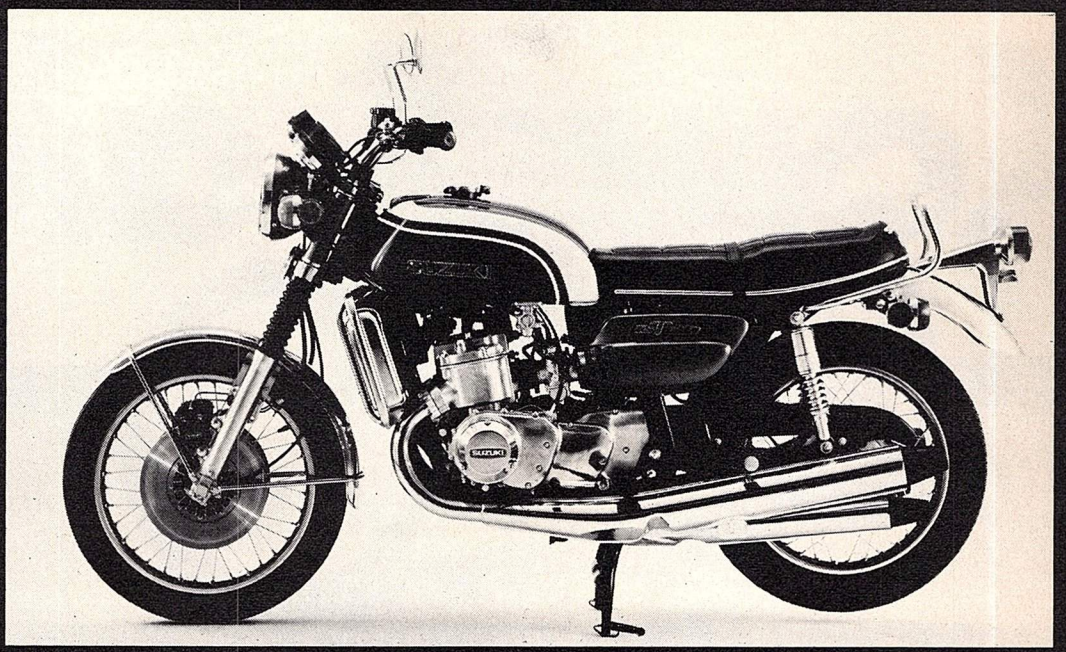
G-4 100



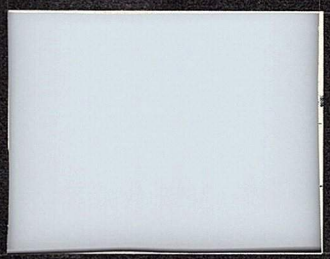
F-9 350

SUZUKI:

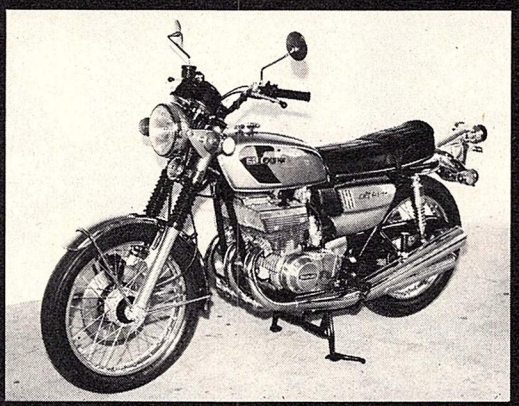
Suzuki's 1973 line up is led by their unique GT-750K LeMans which not only is the solo water-cooled cycle on the market but is the first to come with dual hydraulic front disc brakes. With a 507-pound dry weight and 58-inch wheelbase, the 738cc 67 hp two-stroke triple's forte is unruffled interstate touring. T-500K Titan offers 12 month/12,000 mile warranty (as do all Suzukis), twin-cylinder piston port economy and 45 hp at 6000 rpm. A 57¼-inch wheelbase and 412-pound weight let the lithe 5-speed Titan scurry around tight innercity bends. All '73 Suzuki triples have electric start including the GT-550K Indy. Generating 50 hp from 543cc, the 5-speed 441-pound Indy is the middle weight streetster of the bunch. Sebring GT-380K has a 54¼-inch wheelbase and is the most evasive handling triple. A torquey 38 hp derived from 371cc scoot the 377-pound 6-speed Sebring right along. All '73 street triples also feature four down-swept exhaust pipes with super quiet mufflers, 5-way adjustable rear shocks, CCI automatic lube, flip-up locking gas cap and Suzuki exclusive Ram Air cooling. The new Suzuki disc braked GT250K Hustler and drum-stopped GT-185K Adventurer streetbikes both have novel Ram Air cooling and locking gas caps. Wheelbase of the 21 hp, 253-pound, 185cc'er is 50½ inches. Only one inch longer is the 31 hp, 322-pound, 247cc Hustler which also has a 6-speed box compared to the 185's five. Suzuki's TM-K series 125cc Challenger, 250cc Champion and 400cc Cyclone all



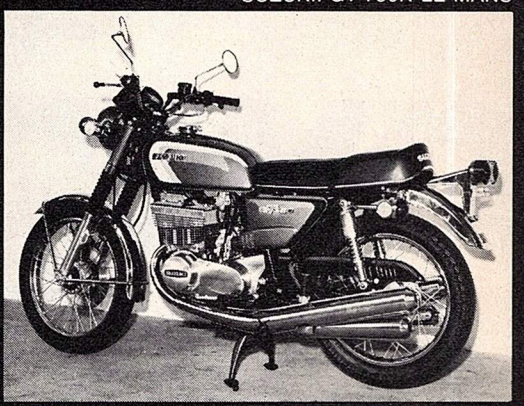
SUZUKI: GT-750K LE MANS



T-500K TITAN

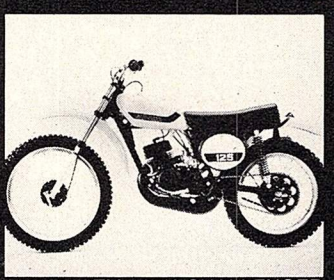


GT-550K INDY

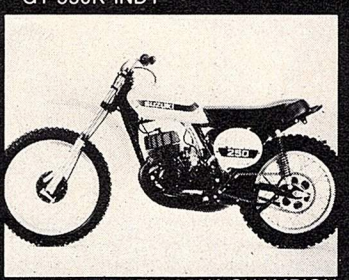


GT-380K SEBRING

GT-250K HUSTLER

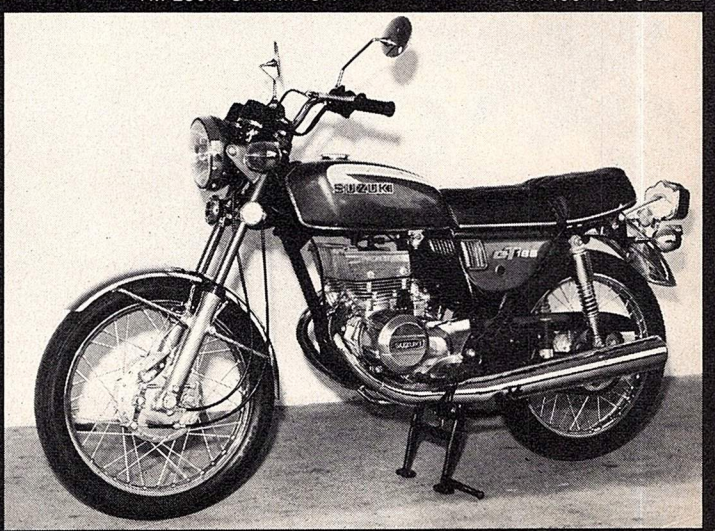


TM-125K CHALLENGER

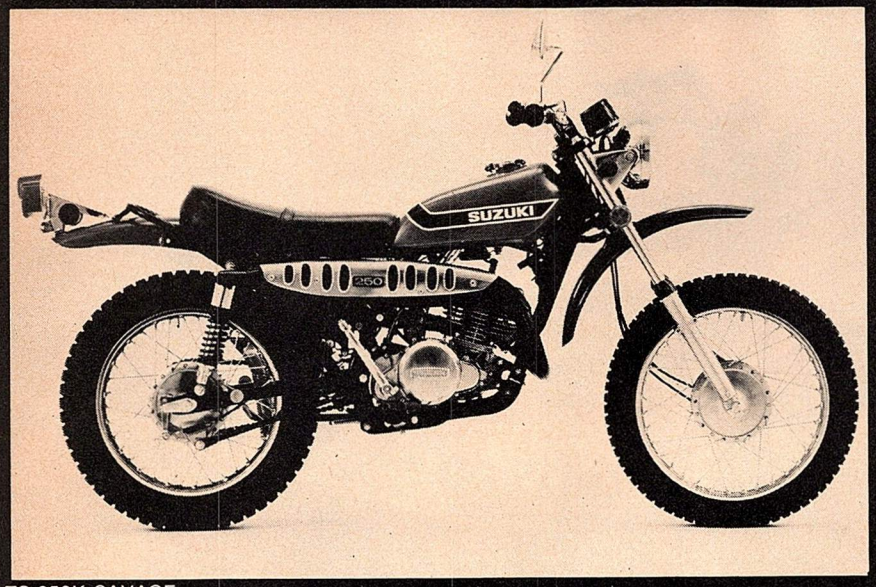


TM-250K CHAMPION

TM-400K CYCLONE



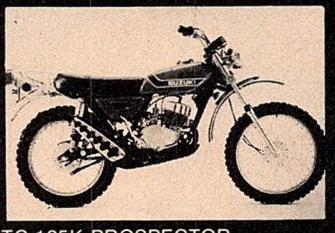
GT-185K ADVENTURER



TS-250K SAVAGE

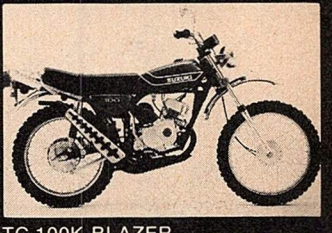
TS-185K SIERRA

TS-125K DUSTER



TC-125K PROSPECTOR

TS-100K HONCHO

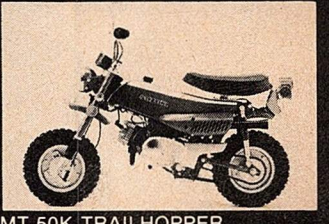


TC-100K BLAZER

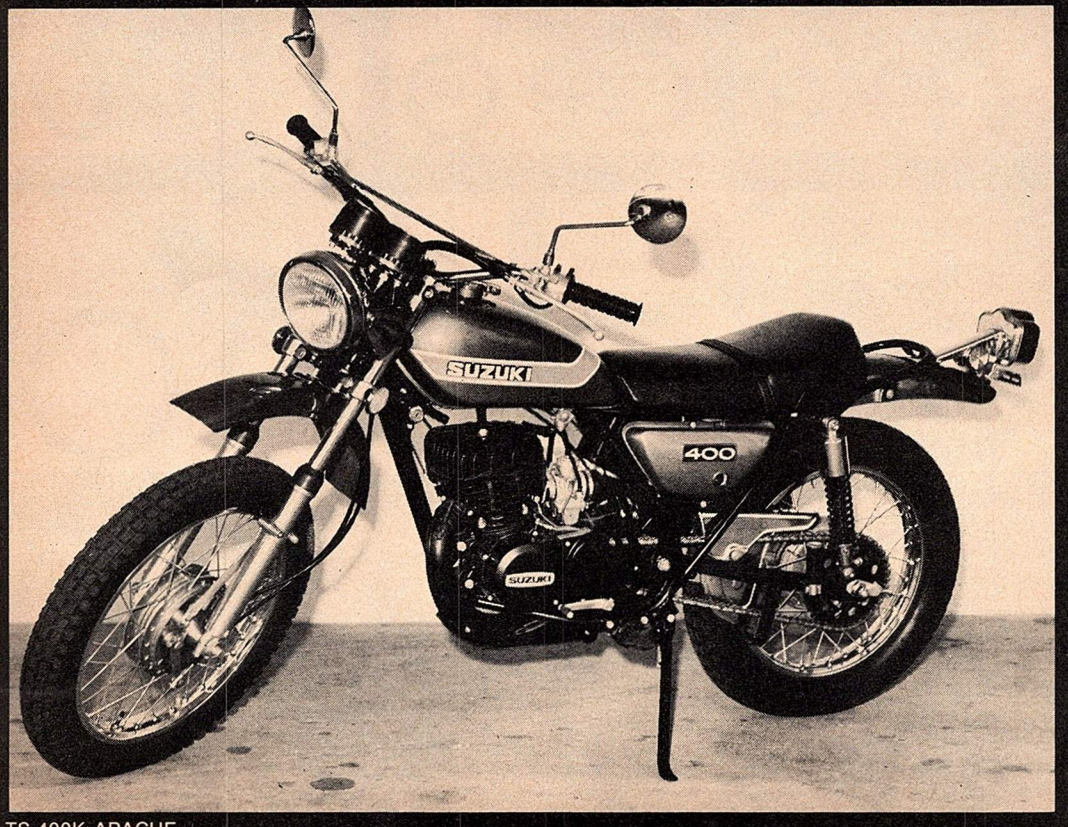
RV-90K ROVER

RV-125K TRACKER

TS-50K GAUCHO



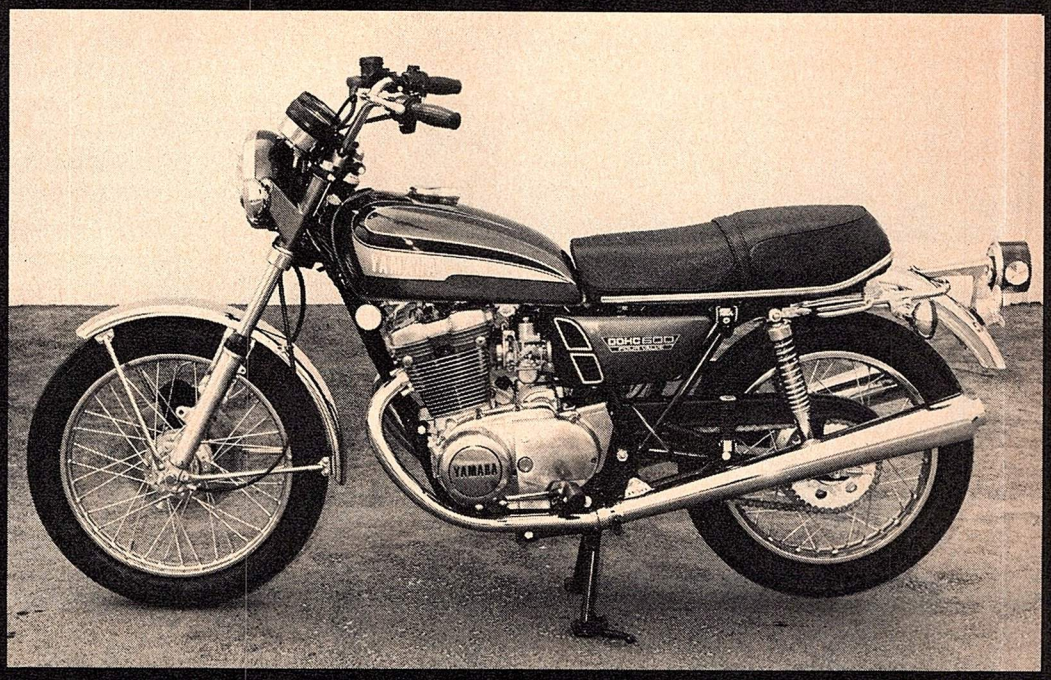
MT-50K TRAILHOPPER



TS-400K APACHE

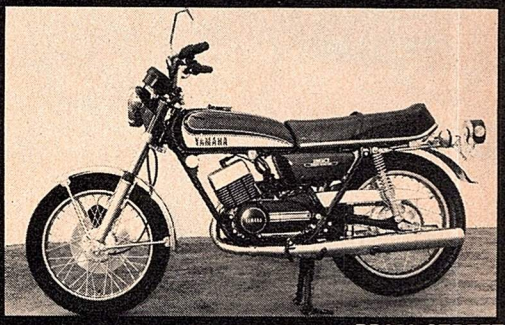
feature Pointless Electronic Ignition, tuned expansion chamber with silencer, aluminum alloy rims, 21-inch front wheel, primary kick start, high impact plastic fenders, 5-position shocks, number plate and progressive single leading shoe front brake. Respectively for the piston port singles, horsepowers are 18, 28 and 36. Weights; 189, 220 and 235 pounds. Wheelbases; 52½, 56 and 55½ inches. Note that the 250's wheelbase is half-inch longer than the 400's. Suzuki won both 250 and 500 world MX classes in '72. Enduros TS400K and TS250K easily exceed 70 mph freeway maximums yet controllably plonk up steep demanding dirt hills. TS-185K and TC/TS-125K's have 5-position rear shocks like their two bigger brothers but also offer something the bigger ones don't, 3-way adjustable front

forks. Furthermore, the TC-125K's gearbox is an eight-speeder, others mentioned have 5-speeds. By the way, the TS-185K will top out at 70 mph plus, making its use versatile; fast highways or slow dirt roads, take your pick! TS/TC-100K's have 11 hp rotary valve singles. Their wheels, 19-inch front and 18-inch rear, are the same diameters as larger Suzukis. TS-100K has 5-speed trans, TC-100K eight. Fat-treaded RV-90K and RV-125K are all-terrain vehicles and go where others won't. Suzuki 5 hp TS-50K is just like the big bikes with 5-speed box. MT-50K mini has 3-speed transmission with automatic clutch.



TX500 STREET


TX750 STREET

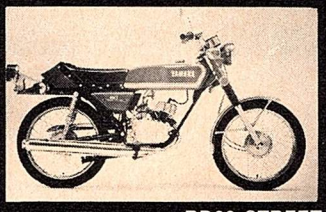


RD350 STREET

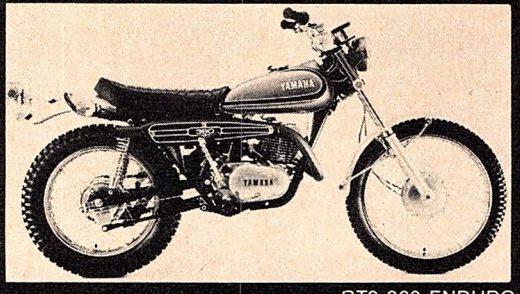
YAMAHA:


TX650 STREET

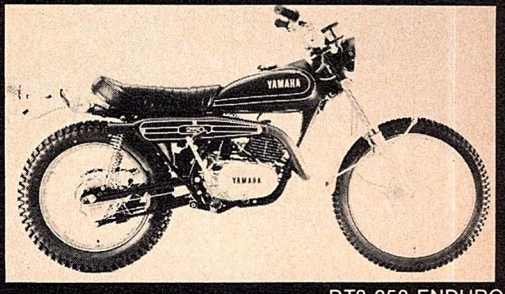

RD250 STREET


RD60 STREET


CT3 175 ENDURO

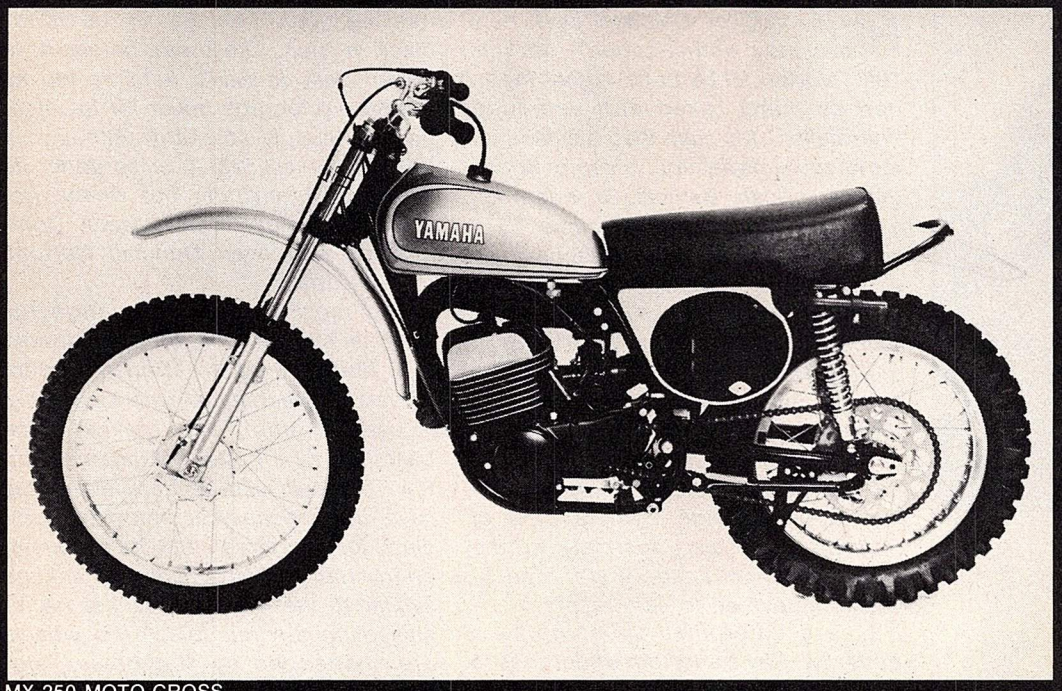


RT3 360 ENDURO



DT3 250 ENDURO

Yamaha just unveiled their new line up. Hit of the 1973 new model intro was the TX750—the largest displacement Yamaha ever sold in the United States. The four-stroke vertical twin TX750 has an innovative Omni-Phase balancing system which consists of a pair of chain-driven balancers that damp out harmonic vibrations normally found in this type engine. The result is the smoothness of a four-cylinder mill with the simplicity, economy and torque of a twin. A 5-speed gearbox, electric starter, 520 wet weight, hydraulic front disc brake and full instrumentation add to the bike's overall touring ability. In the corner of the Yamaha exhibit stood quietly maybe the sleeper of the year, a DOHC eight-valve, twin-cylinder 500cc street machine. Not much info was available, however just sitting on it and flicking the cycle side to side suggests a low center of gravity and possible, super good handling virtues. Also the TX500's stoplight stance is a commendable flat-footed one. Keep your eye on this one! Streetsters, RD250 and RD350, both have six speeds, reed valves and new tasteful styling. Plus the RD350 has a real neat front disc brake. Yamaha's OHC vertical twin street 650 featuring electric start is again available for '73. The neatest looking cycle to come along in many moons in our opinion is the RD60 baby streeter. A 60cc two-stroke reed valve single with seven-port cylinder plus primary kick start, 5-speed trans, autolube oil injection, full big bike suspension and double cradle tubular frame make this one a classy pavement machine.



MX 250 MOTO-CROSS

MX 360 MOTO-CROSS

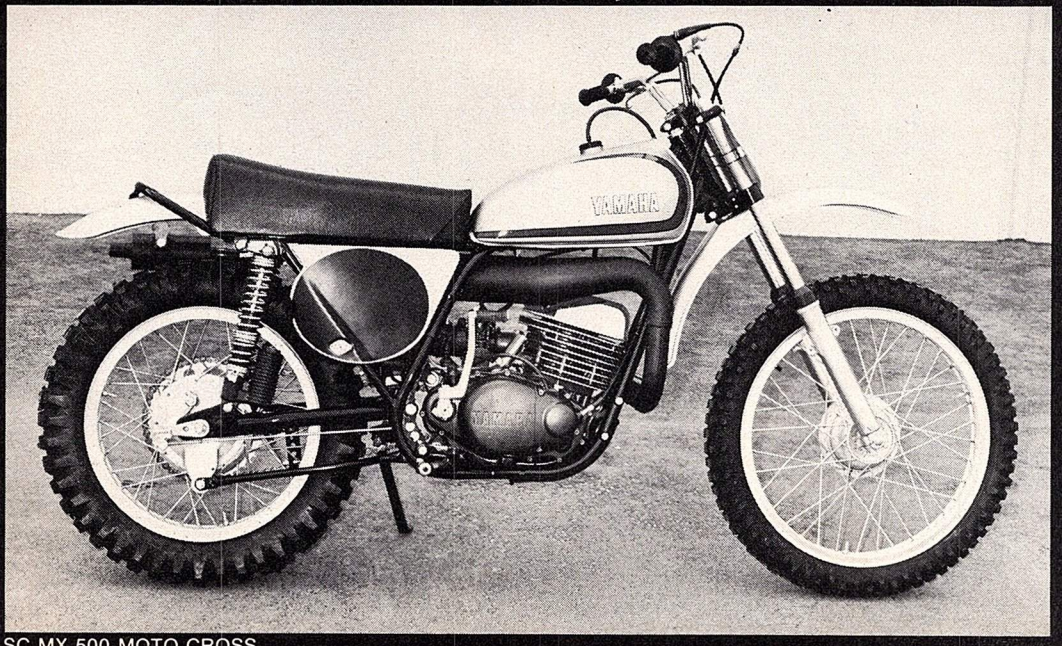
AT3 MX 125 MOTO-CROSS

GT1 MX 80 MOTO-CROSS

LT3 MX 100 MOTO-CROSS

LT3 100 ENDURO

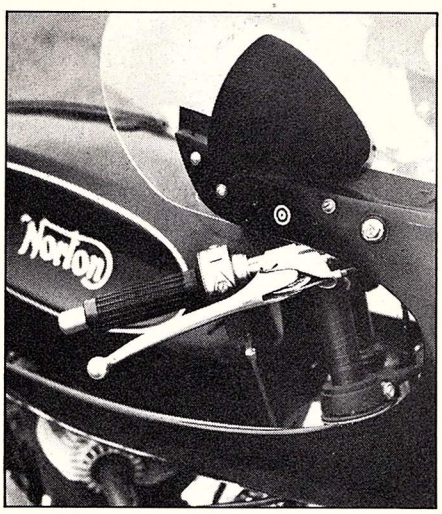
AT3 125 ENDURO



SC MX 500 MOTO-CROSS

GT1 80 ENDURO

New in the Yamaha line of enduros is the GT-1 minibike which resembles a full-size motorcycle with its all new 73cc two-stroke, seven-port single featuring reed valve induction and autolube oil injection. Only changes in the 250 and 360 enduros are the utilization of 21-inch front wheels for improved handling. The 175 enduro remains as is in '72 but with a bold new '73 paint scheme. Yamaha's 250 and 360 MXers have redesigned frames that help save weight, increase strength and lower the center of gravity, thus improving maneuverability and handling. An all-new 'crosser is the seven-port, reed valve thumper SC500 that has Omni-Phase balancing and another new Yamaha innovation, Thermo-Flow cooling—it keeps the suspension operating smoothly over the roughest terrain. Yamaha's 1973 LT-3 100cc MX and AT-3 125cc MX competition machines remain virtually the same as in '72 with the exception of blacked out engines, muffled silencers and exciting new graphics. Yamaha LT-3 100cc enduro and AT-3 125cc enduro have not been altered at all for '73 other than in looks.



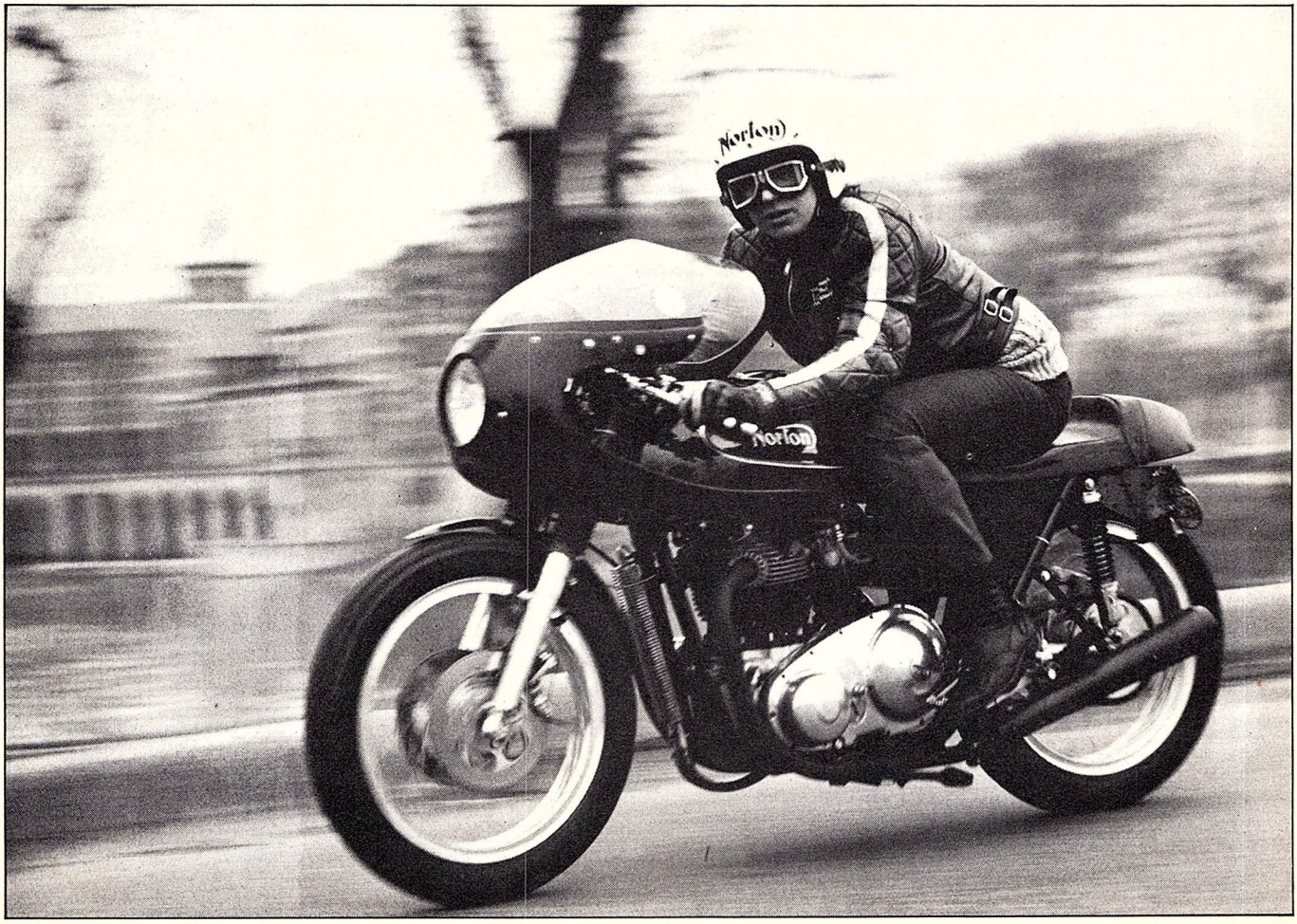
Ray Banicki's Norton PII hustles him around Chi-town in style. Story and photography by Jim Quinn.

CHICAGOAN CAFE RACER

Ray Banicki of Chicago says he's "militantly anti-chopper," but his 1968 Norton P11A is as highly modified as many raked and extended "hardtails." It's just that his idea of motorcycle perfection is more British than American. Banicki, 31, has been a motorcycle Anglophile since 1956 when he bought his first machine, an Ariel Square Four. Although he has owned a Harley-Davidson and a dirt Yamaha since then, he's still sold on the handling, power, and mystique of British machines, particularly Nortons. His P11 is his sixth motorcycle, and he's so enthusiastic about it that he has become the U.S. representative for the Norton Owners Club of England. He's also secretary of the club's Chicago Lake Shore branch, which is devoted to cafe racers.

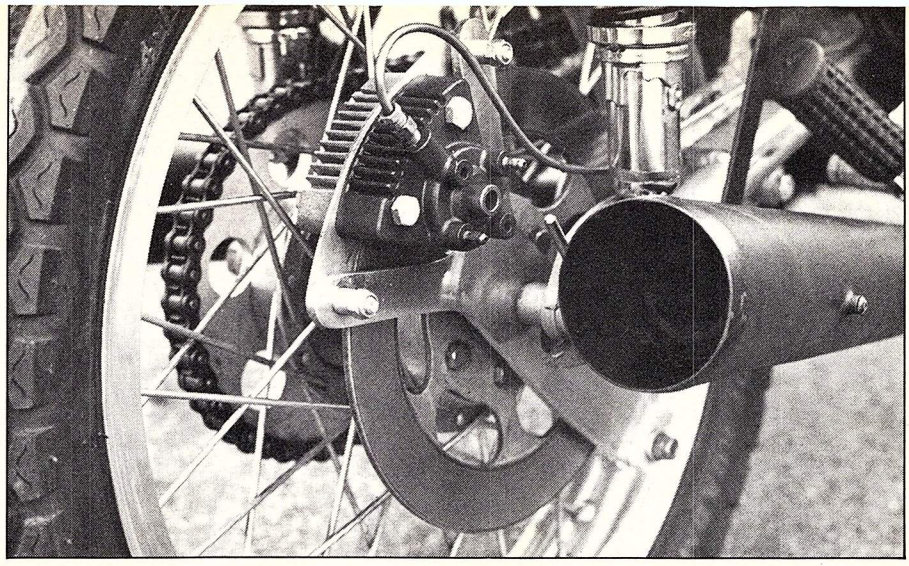
Like a caterpillar changing to a butterfly, Ray's Norton undergoes a yearly metamorphosis in his basement each winter, whenever he finds time between jobs in his part-time customizing business, Ton-Up Engineering, Ltd. This year's beautiful black version, like those before it, is ridden daily to Ray's full-time job as a motorcycle parts buyer for a Chicago auto supply company. Although it has more than 52,000 miles under its wheels, it's anything but weary. According to Ray, it eats stock Commandos and even Dunstall Nortons for breakfast.

The most distinctive change for 1972 is the addition of Campagnolo disc brakes fitted to 19-inch Borrani wheels. A mechanical twin disc setup is used in front, with braking force balanced by a pulley arrangement on the Tomaselli clip-on handlebar. Ray says the mechanical setup is sufficient for the street, but he's considering changing to a hydraulic linkage similar to the Chemtab caliper he installed on the rear disc. The wheels are suspended by Matchless Teledraulics forks at the front and Betor shocks and springs in back. The TT100 (K-81) tires are new this year, and Ray says the improvement



they've made in the bike's already good handling is "fantastic." The Norton got some new fiberglass this year, including a huge six-gallon tank from Alloy Racing Equipment in England and a dual seat originally intended for a BSA. Though not a perfect touring saddle, it's big enough for Ray and his wife, Carolyn, on Sunday morning rides. The tank, seat, frame, Dunstall half-fairing and Rickman front fender received a coating of black epoxy paint for 1972, and the engine, top triple clamp and oil tank were sprayed with black wrinkle finish. Eighteen karat gold leaf trim on the tank adds a tasteful, traditional accent.

The engine, boosted from a 7.5:1 to a 10:1 compression ratio, has received a thorough porting job, a T.C. Christensen competition camshaft, and a pair of 32 millimeter Amal concentric carburetors. Hot engine oil is circulated through an automotive oil cooler on the right front downtube. A Cibie auto headlight fitted with a yellow fog bulb lights the road in front, and the license plate and Lucas taillight are slung low on the left side—chopper style!



Not surprisingly, Ray likes his bike—enough to bolt on a Cycle Gard alarm to make sure it stays his. But that doesn't mean he's through with it. He'd like to add a five-speed Quaife gearbox and perhaps a 750cc alloy cylinder conversion next winter (not an 810 kit, though; "If Norton had wanted to make an 810cc bike, they'd have made one!").

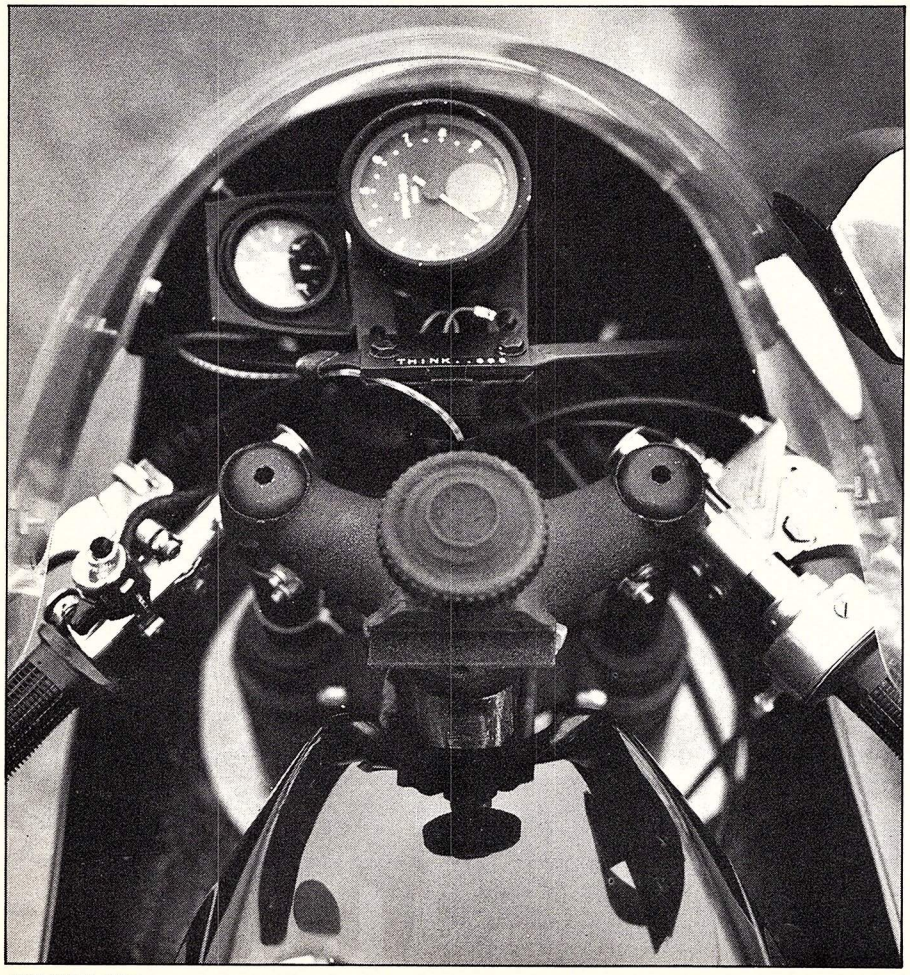
But before he makes those changes, he'll probably have to keep peace in the family by buying his wife a second English sheep dog—that's her hobby! •

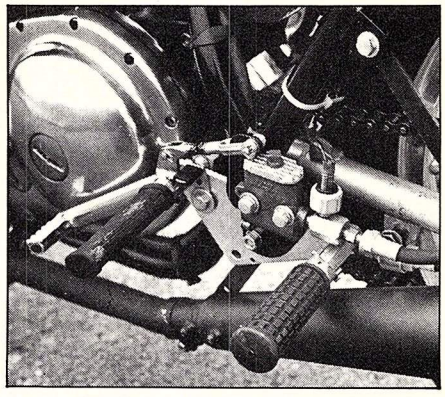
• A Chemtab hydraulic caliper on a Campagnolo disc, Borrani wheel, Dunlop K81 tire and Betor shocks help stop the bike arrow straight.

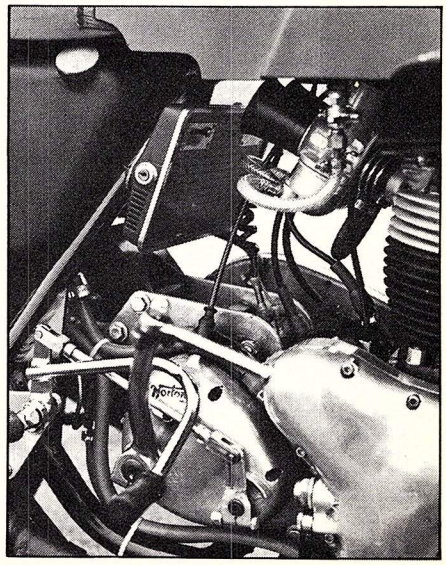
• In true racer concept, the tach is positioned with the bloodline at 12 o'clock. Sleek semi-dolphin fairing, clip-ons, the race is on.

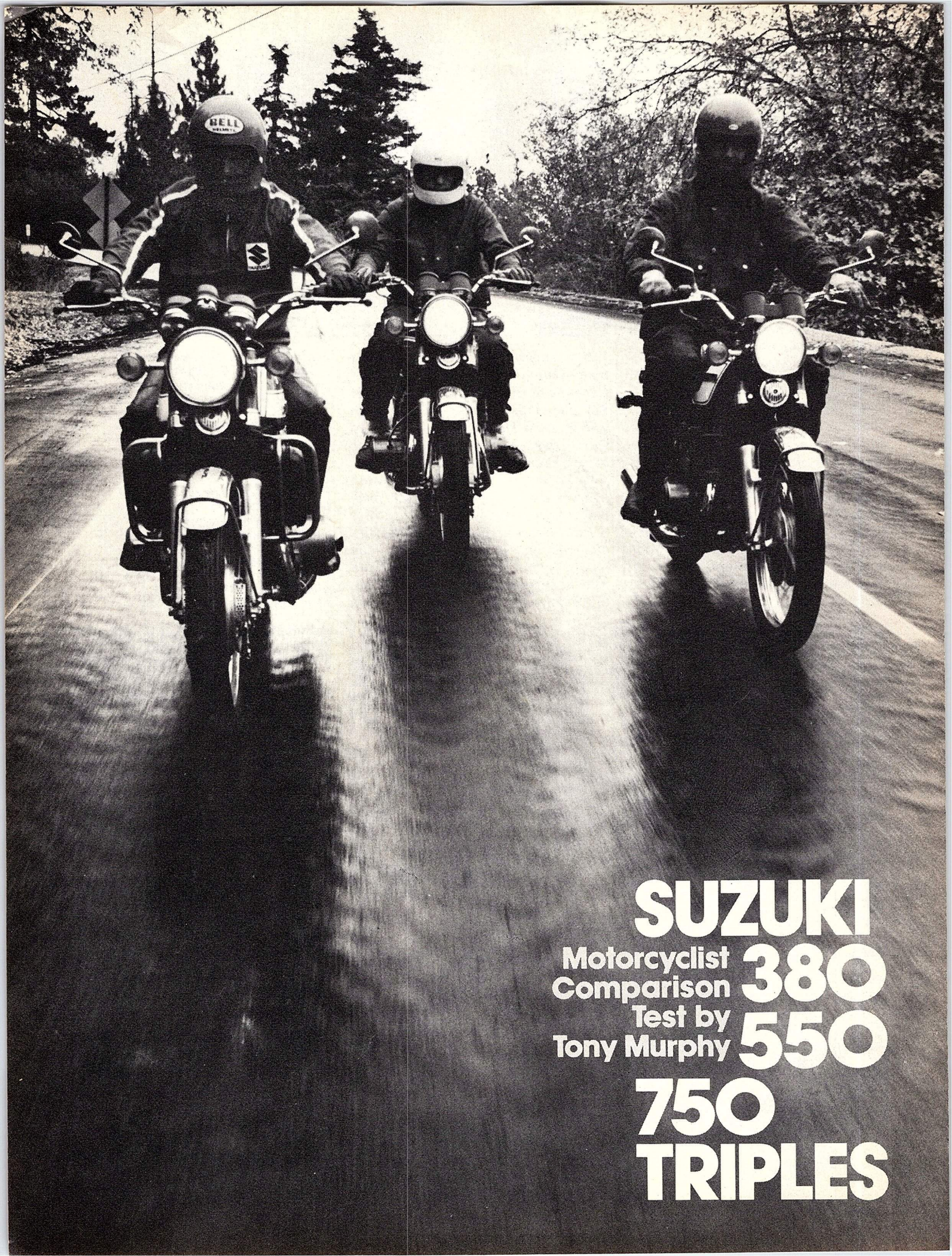
• Hurst/Airheart hydraulic master cylinder and rear brake light actuating switch are visible here. Note the custom foot peg bracket.

• Twin 32mm Amal carbs with velocity stacks are used for more urge. Rearset shift linkage is a help. Cycle Gard keeps the parts.









SUZUKI 380 550 750 TRIPLES

Motorcyclist Comparison Test by Tony Murphy

There was a time when the American rider had a choice of about three touring machines; but these days he has a choice of three from each of the large manufacturers. Honda has a trio of four-cylinder-powered tourers; Kawasaki has no less than four, three two-stroke triples and a four-stroke four. Suzuki, not to be outdone by its competition, got in the act in 1972 with its own three-cylinder threesome; a 380, 550 and water-cooled 750. For '73 they've retained the basic machine layout, updating it with cosmetic changes and the addition of disc brakes. We've already compared what Honda and Kawasaki have to offer in the small, medium and large street/touring capacities, now it's Suzuki's turn for the scrutiny, comparison and opinion that may answer the inevitable question a prospective buyer will ask, "Which one do I need?"

The three-cylinder two-cycle concept is a good one, pioneered in two-stroke tourers by Kawasaki, but closely followed by the water-cooled 750cc Suzuki. For smooth power flow and vibration-free running it can't be topped. With three cylinders to work with, the engine firing impulses can be equally spaced around the 360 degrees of crankshaft rotation. With a firing impulse every 120 degrees, one cylinder is hardly done with its power stroke when another one starts. This overlapping of the engine's power strokes contributes to the overall smoothness of all the Suzukis.

While the choice of three cylinders is pretty easy to analyze, not so the displacements of the smaller two machines. Why a 380cc and 550cc machine? Is it an attempt to get a slight displacement edge within the 350 and 500cc categories? Surely at one time someone at Suzuki had to make the decision and when he proposed a 380 and a 550 someone must have questioned why. We asked but got no satisfactory answer. The initial explanation was that the engines were three singles put together. Three 125's for the 380 and three 185's for the 550. Though it sounds good, the bore and stroke are different in both cases. Perhaps we'll never know.

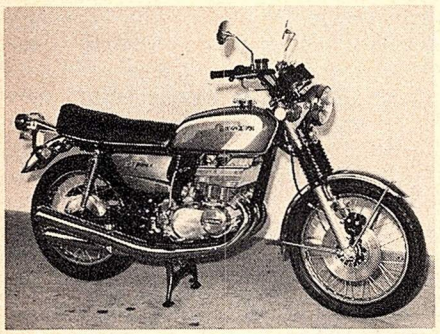
Whatever the reason, the 380 and 550 are strikingly similar in external appearance, causing one to take a second look to be sure which is which. The big 750 has a look all its own, having little if anything, other than its four exhaust pipes, to place it in the same family as the smaller machines. Not only does it have a look all its own, but its superior touring-type performance actually qualifies it alone as the true touring machine of the three. The other two fit in a different slot. While the 550 will double as a good tourer, the 380 is best kept away from the open road.

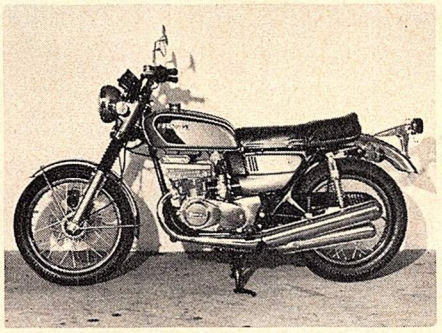
Those are pretty much the overall opinions reached by our test staff after a side-by-side-by-side test, covering some 1500 miles of highway and byway riding. By switching riders every tankful and keeping accurate records of fuel and oil consumption, we found out a great deal about the efficiency, performance and relative comfort of each. Many miles were spent on each one with a passenger, gaining further impressions of two-up suitability. Seating comfort, rear peg vibration are important considerations before any new bike purchase. How the added weight of a passenger affects the performance and handling was another area of interest to us since we'd previously experienced several rocketships that turned into pussycats once another 170 pounds was added to the weight. The 380 and 550 had a very noticeable drop in performance under such conditions, while the 750 took the added weight in its stride. In fact, a high-gear drag race from 60 mph between the 550 with one 150-pound rider and the 750 with two riders totalling well over 350 pounds came as quite a shock. The 750 just walked away.

But while the 750 shines as a tourer, it lacks the slow speed agility of the smaller two, making in-town riding a full-time job for smaller riders. Its gassed-up weight of 551 pounds and heavy steering keep you on your toes all the time. Much of the weight is in the engine itself, but there have been very few efforts to save weight on the rest of the machine. Unfortunately, in spite of the massiveness of the machine in general, the handling seems to have suffered rather than improved as a result. While the engine is smooth and super powerful, the chassis wiggles and shakes, hanging up on even medium speed corners with one person, and what seems like all the time with two. After watching the flexi-flyer Suzuki racers at Ontario it's a safe bet the chassis for both the racer and the street job were designed by the same engineering team.

But wiggle and shake as it does, the turbine-smooth powerplant is delightful. On the open road there is nothing about the machine's performance that can be faulted. Even on steep grades with two aboard, a twist of the throttle squirts the heaviest load right by any slower vehicles without resorting to a downshift. Even the Suzuki's worst critic must admit that the engine is super.

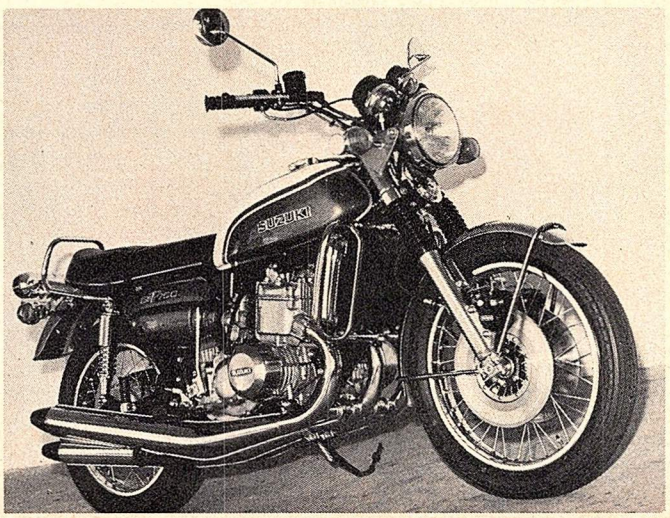
It should come as no real surprise that Suzuki came up with a water-pumper that worked. They've had a lot of experience with small racing engines that were liquid cooled and managed to win some world championships with them. No doubt many of the pitfalls that one might expect of a new design were made years back, long before they even entertained thoughts of a water-cooled tourer.

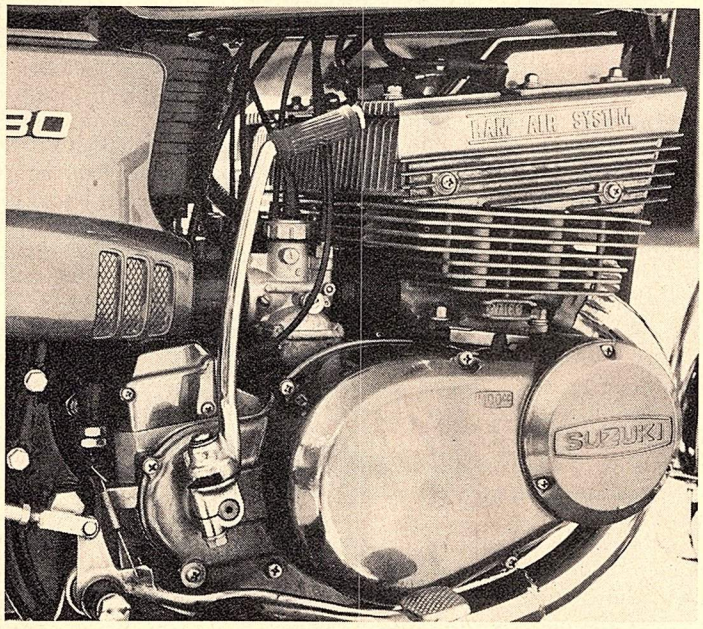




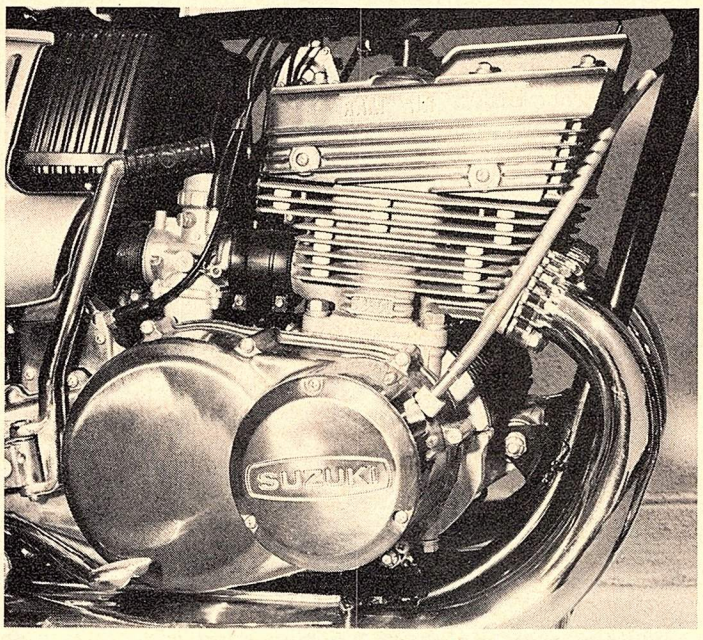
PHOTOGRAPHY BY ERIC RICKMAN

There are big differences other than engine size to help (or confuse) your choice of these three street/tourers.

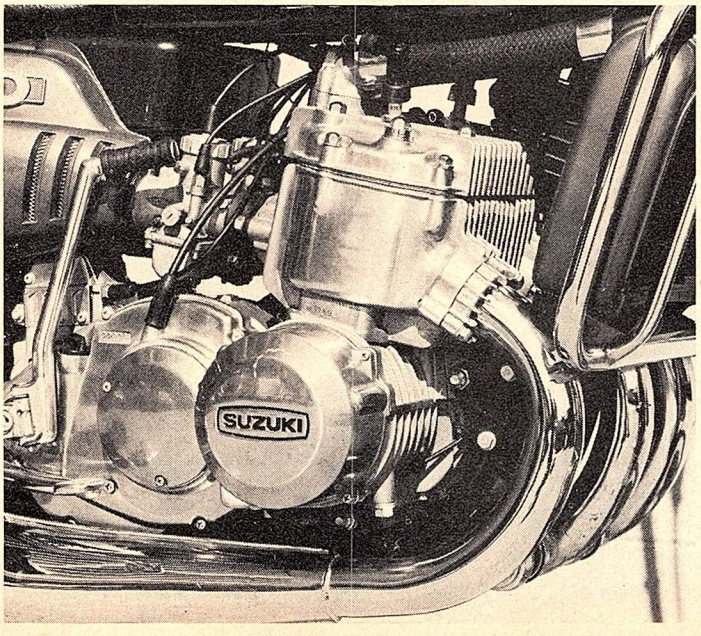




380: *At a glance the engines in the 380 and 550 appear to be identical. However, closer inspection reveals differences in side cover, carbs and cylinder fins.*



550: *Oil pump is located on rear of crankcases just behind kick start lever. Cable out of side cover is for tachometer. Note ram air cover on cylinder head.*



750: *Engine is massive, bears no resemblance to the smaller versions. Sides of cylinder and head are brightly polished.*

Without the cylinders and head in place, the 750cc crankcase assembly is conventional. Conventional, that is, if you don't spot the water pump hanging underneath. It's a mechanical pump driven through a spiral gear by an idler gear off the left side of the crankshaft. The water is pumped through the crankcases to the cylinder block, then through a thermostat opening to the radiator. When the engine is cold, the water bypasses the thermostat and returns directly to the pump. Once engine water temperature reaches 95°C, the bypass valve opens and provides the system with a free flow to the radiator. An electric fan just behind the radiator is automatically activated when engine temperature exceeds 105°C but is otherwise inoperative.

Why water-cooling? Suzuki claims that engine temperatures are reduced by some 30% and therefore closer assembly tolerances are employed. This, they say, results in quieter running, less piston slap and longer engine life. They're right about the first two since the engine noise is as low as anything we've ever tested. As far as longer engine life, only time will tell.

The crankshaft rides in four large main bearings, each with its own rubber seal to prevent leakage from one cylinder to the one next to it. The primary drive helical gear is part of the crankshaft assembly, situated between the right and center cylinder. By placing the gear inboard of the crank end, the clutch assembly that it drives can also be placed inboard and the rear of the engine can be narrower than one might expect and there is no need for a jackshaft arrangement as used on the almost-as-wide Honda multis. Unfortunately the same pains were not taken with the front of the engine. The generator is mounted on one end of the crankshaft and the ignition system on the other, making the engine one of the widest ever made, rivaling a BMW for overall width.

The five-speed, start-in-gear transmission is, again, conventional, being driven by the multi-plate wet clutch. The internal gear ratios are identical to those of the 550, although the transmissions are not interchangeable. So wide is the power band of the engine that the actual ratios are unimportant since the rider has his choice of two gears for just about every situation.

The transmission also serves to drive the CCI automatic oiling system that provides lubrication for both the crankshaft and cylinders. The pump is mounted atop the crankcases to the rear of the transmission and is driven by a spiral gear on the kickstarter shaft. In addition to the automatic oiling, all three of the Suzukis incorporate an excess-oil recycle system that draws oil accumulated in the crankcase on one

cylinder and forces it into the transfer port of another. There it serves as extra lubrication for that cylinder rather than accumulating in the crankcase where it would ultimately belch out in a cloud of unwanted smoke.

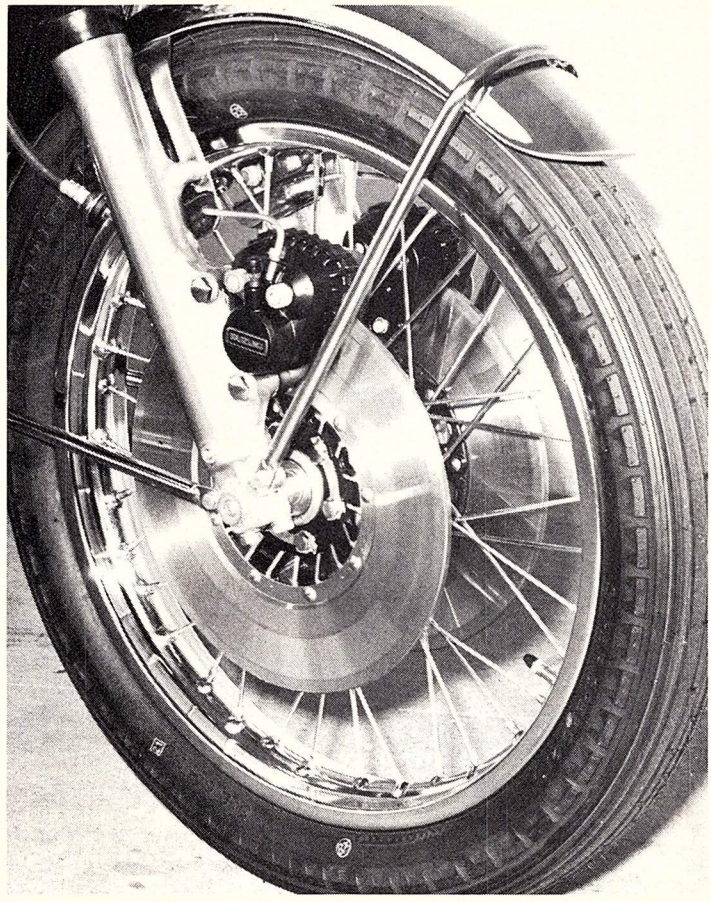
The three cylinders are cast in one block, just like a car. Alloy pistons, each with two rings, ride in cast-in steel sleeves. As is almost 100% common these days, the piston pin is supported on a caged needle bearing. To accommodate large transfer ports, the ports are not on each side of the cylinders as found on a single. Instead, each cylinder sleeve has been rotated approximately 45 degrees to allow the cylinders to be placed closer together. It is interesting to think just how wide the engine might be if this had not been done. As a result, the exhaust ports are not equally spaced across the front of the cylinder, there being a greater distance between the right exhaust and the center than there is between the center and the left. This is not the case with the intakes since they are situated below the level of the transfer ports. Three 32mm Mikunis are equally spaced, joined by a rubber boot arrangement that feeds them from the air cleaner.

Like the cylinder, the cylinder head is a one-piece alloy casting, incorporating the thermostat housing. The absence of finning is a little strange to look at in the beginning but one gets used to it. Each end of the cylinder and head are brightly polished with small non-essential fins in the front and back.

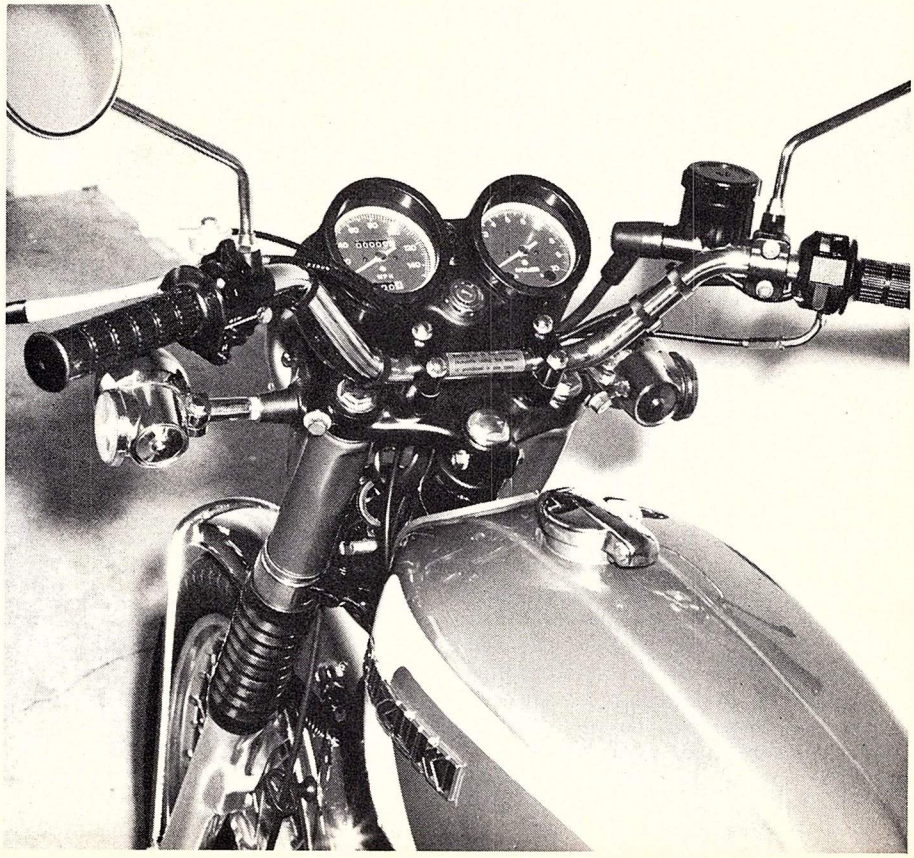
The engine assembly is rubber-mounted in the large double downtube frame to further eliminate vibration. How well the rubber works can be observed at idle when the engine is wobbling around in the frame and yet not even a tingle can be felt in the bars or footpegs. Once off idle the engine settles down but it could well be that the rubber mounts contribute to some of the machine's peculiarities.

Robust it may be, but for some reason, or a combination of many reasons, it does not handle if the rider is in a hurry. Because there are four massive exhaust pipes and mufflers hung beneath the machine, items like the side and center stand are so close to the ground that they scrape at even the most conservative angle of lean. The machine is so wide and low that it can be ridden up to a curb and just leaned against it without the need to use either stand.

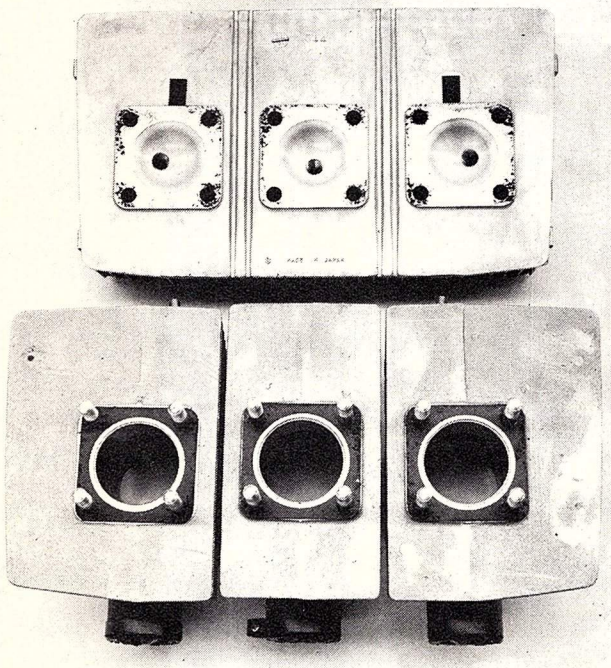
The forks and rear suspension offer about the same level of efficiency as the frame when the machine is ridden hard. Cruised at normal touring speeds on a black top road the ride is plush and comfortable, but get on a cement slab highway and both ends stop working. The slight variation in the height of the slabs is not enough to move either the forks or the rear shocks and as a result each transition jolts the rider through both the bars and the pegs. Such a suspension system is not uncommon these days, particularly among the Japanese machines, but since several other road machines don't suffer from it there is no reason that it can't be corrected.



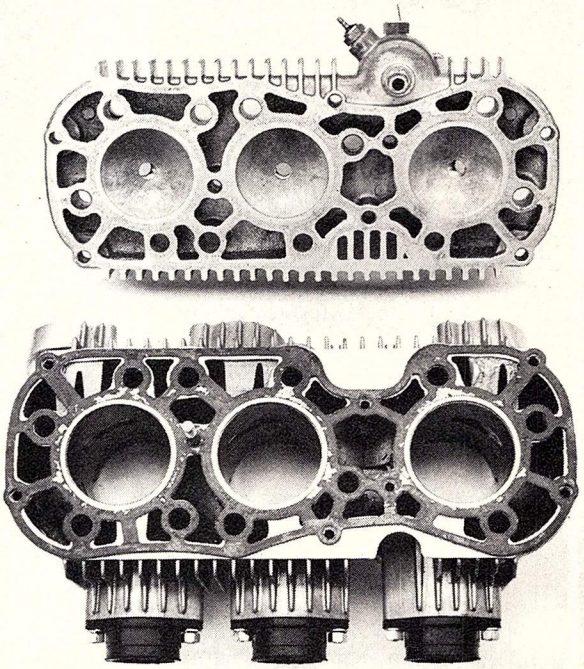
Left: *Double discs on 750 are a big improvement over earlier drums. The 380 and 550 use a single disc setup.*
Below: *Instruments on all three are first rate, have warning lights for high beam and neutral. Turn signal and ignition switch in middle.*



380 & 550: *Individual alloy cylinders have cast-in steel liners. However, cylinder head is one-piece casting.*



750: *Water-pumper also uses cast-in steel liners but are cast in one cylinder block. Head is also one-piece.*



All three of our test machines were actually 1972 models since the first batch of '73's had not yet arrived from Japan. Suzuki assured us that mechanically the new ones would be just like the old ones with the exception of disc brakes on the front wheels so all of our impressions were gained on a trio of new '72's. Before the test's conclusion we had an opportunity to spend a day riding three disc brake versions and satisfied ourselves that the engines, transmissions and chassis were the same. The brakes, however, were a tremendous improvement. Particularly in view of the fact that the drum versions on the earlier machines were next to useless after several hard stops. The discs were tremendous, providing positive, fade-free stopping no matter how hard or how often they were used.

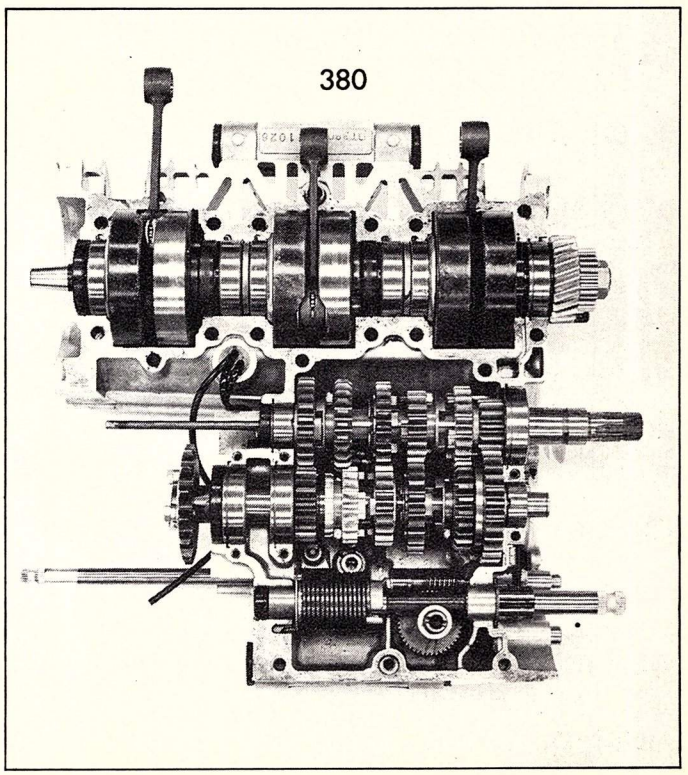
As we said earlier, the 750 is the true tourer. Consequently, we tackled it first and minimized direct comparisons with either the 380 or 550 because they are out of a different mold. However, their similarity does enable some comparison with each other, relating to both touring and around-towning as well as mechanical make up. Before we get to that we'll tell you one thing. If you are looking for a long distance tourer capable of carrying two people and their essentials, don't read on. The 750 is it among the Suzukis, the smaller machines falling far short in many areas.

Since the origin of the 380-550 concept is unexplained, we'll just assume that somebody, somewhere pegged them as being ideal. For fun transportation they weren't far off. There are several areas that will come under criticism, but there are also several areas that will get a great deal of praise. Here goes.

The single most noticeable difference from the 750 is the fact that the smaller versions are air cooled, causing us to wonder why water-cooling is such a bonus on one model but not on the others. Accepting Suzuki's reason of less noise through closer tolerances, it follows that the larger cylinder bore of the 750 requires more piston clearance while the smaller engines can get by with less. At any rate, mechanical engine noise on both the 380 and 550 are well within acceptable limits, but the induction roar is quite noticeable.

Other than the fact that the engines are three-cylinder two-strokes, the design layout is very conventional. Not unlike a twin-cylinder two-stroke with

380: *Major visual difference between 380 and 550 is the six-speeder in the 380 and the smaller crank dimensions.*
550: *Basic design of both is the same. With only five-speed transmission, gears are bigger while they take up same space as six-speed.*
750: *Primary drive is taken from crank between cylinders. This allows clutch to be tucked in behind the widest portion of engine.*



an extra cylinder. The crankshafts have six main bearings, compared to four on the 750, each separated from their respective set of flywheels by a rubber seal. The rods ride on caged needle bearings on a straight press crankpin. Side-play of the rod is controlled by thrust washers.

Primary drive from the crankshaft is taken off the right side by a set of helical reduction gears. Outboard of the drive on the right side are the ignition points and tachometer drive gear. The left end of the crankshaft drives the alternator. Engine width is kept down on the left but the right side, housing both the primary drive and multi-plate clutch, sticks well out. While the engine width itself does not affect performance it does require that items like the footpegs and rear brake controls be placed farther apart and therefore are more prone to come in contact with the ground, particularly with the weight of two riders. Like the 750, both the 380 and 550 can be leaned against a curb once the side and center stands have been ground off, something that could easily happen to an overexuberant rider.

Topside, there are three individual cylinders, each with a steel liner. The alloy pistons each have two rings and are supported on the connecting rod with a caged needle bearing. Like the 750, the cylinder head on both the 380 and 550 is a one-piece casting with the center cylinder's spark plug dead center in the combustion chamber and the outboard ones a little off center to facilitate removal. A separate bolt-on cover, termed Ram-air induction, sits above the cylinder head with three access holes for the plugs. The squared-off engine shape is becoming Suzuki's trademark and as with the other machines in their line that are using it, it is very attractive.

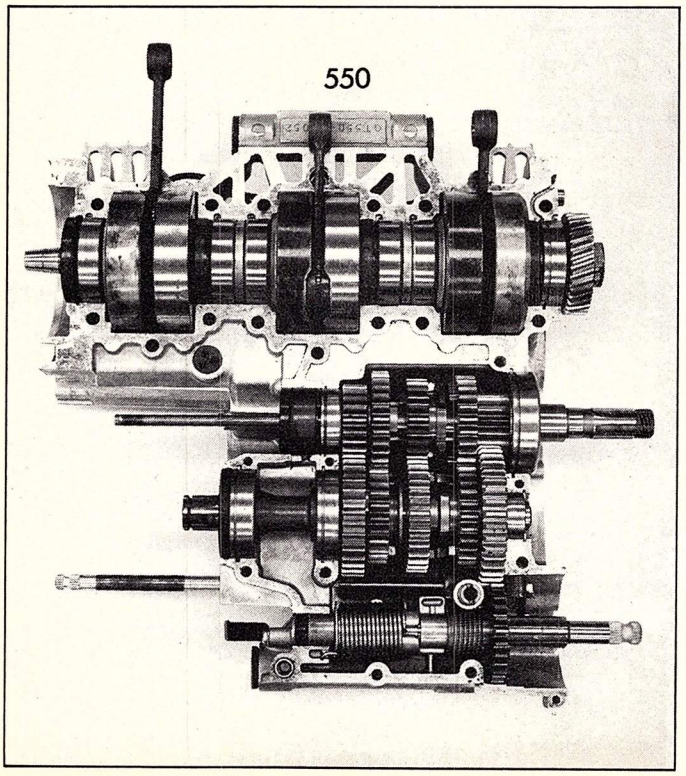
Transmissions differ in that the 380 is a six-speeder and the 550 gets along with five, but in both cases the selection of gear ratios is right on. The combination of ratios and a wide power range from both engines never catches the machine off guard. There's always a smooth flow of power without the big lunge associated with many high-performance two-strokes. Changing gears is easy and always positive, but there's a tremendous clunk that goes with each change out of low gear. We traced it to the very long dog slots that are engaged for second gear, but try as we did it seems impossible to make the low to second gear change on either machine without the big clunk that is felt as well as heard. Though probably not harmful to the transmission, it's annoying to the rider.

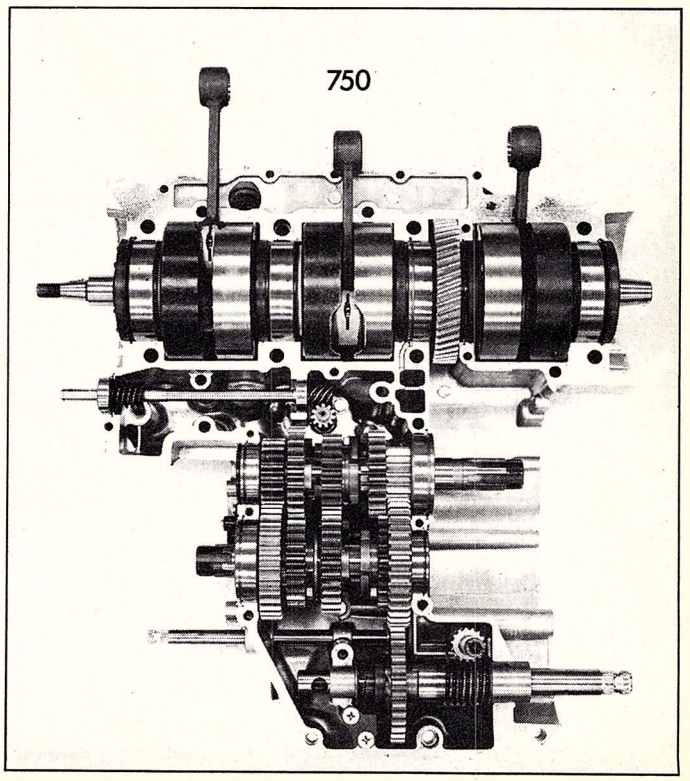
Equally annoying to the rider are some little things like the kickstarter arm resting against the rider's calf, vibrating all the time along with the rubber-mounted engine. Passenger comforts on both the small machines are a world apart from the 750. The rear pegs vibrate enough to put your feet to sleep and the seats are so small that the rider must scoot forward to allow room for his passenger. Little by little the points add up against taking either one on a serious trip with a companion.

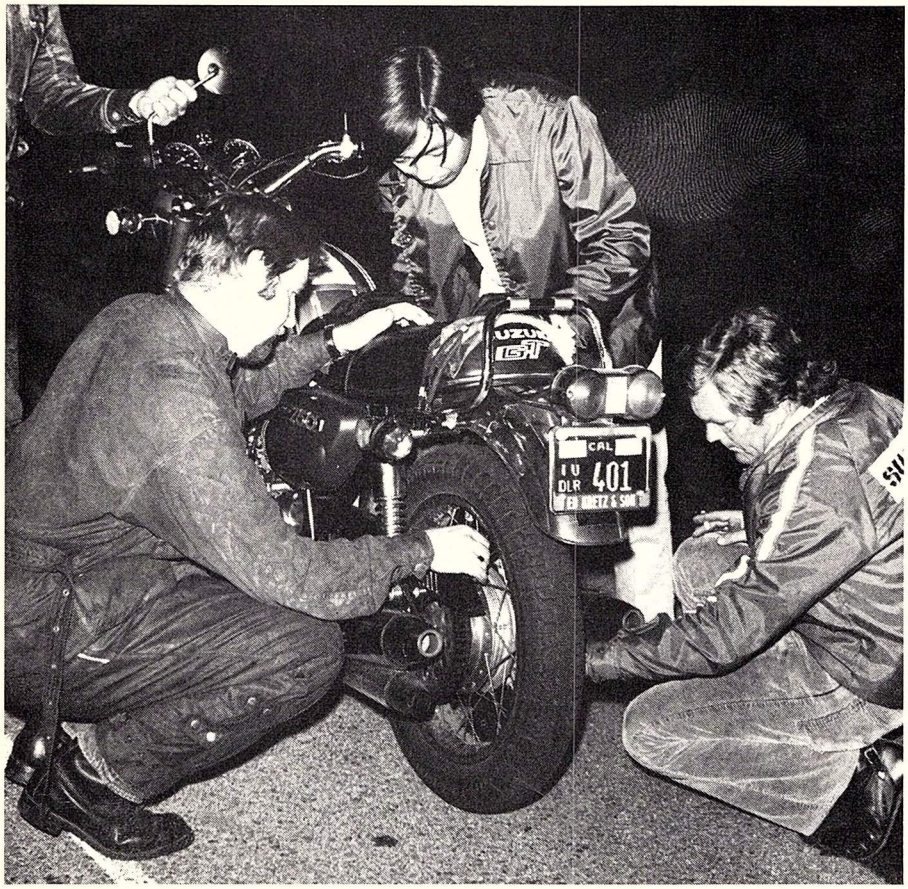
Since that area is somewhat eliminated, we'd better take a long hard look at the alternative; around town riding. Both are nimble in traffic but, although the engines are spirited enough for pseudo racers, the chassis lets them down. Neither machine can be called a good handler when ridden hard strictly because they both scrape on the ground and feel like they have a hinge in the middle. Arguments that a street machine is not intended to be ridden fast enough to scrape things can easily be countered by pointing out the fact that the engines are touted as being powerful, which they are, and performance is judged by how fast each will go. In this case Suzuki claims over 100 mph for each of them, a figure that we know is accurate. If such is the case, the chassis should be up to taking bike and rider around corners as well as down a straight stretch of road. In an emergency situation, the ability to lean the machine over may be more important than its ability to stop, something that both do extremely well with the front discs, poorly with last year's drums.

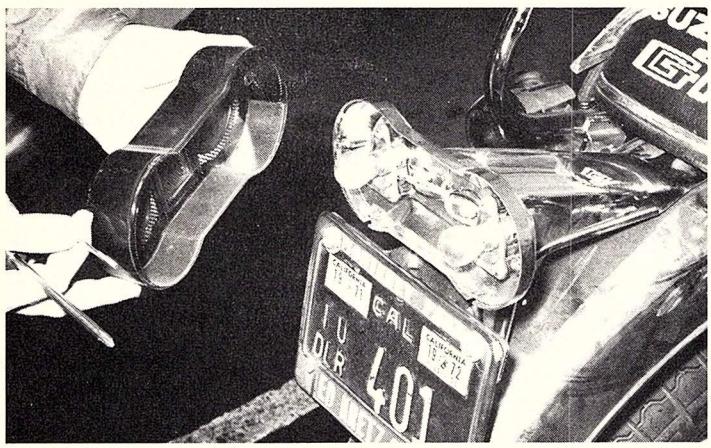
Item by item there are few features that have been forgotten on any of the three. Why then has the importance of each item's function been overlooked? The speedometer/tachometer assembly, complete with a water temperature gauge on the 750, is easy to read and very attractive. All the speedos have a resettable trip mileage while the tachometers house warning lights for neutral and high beam. Tucked between the two instruments is the ignition key. Very compact.

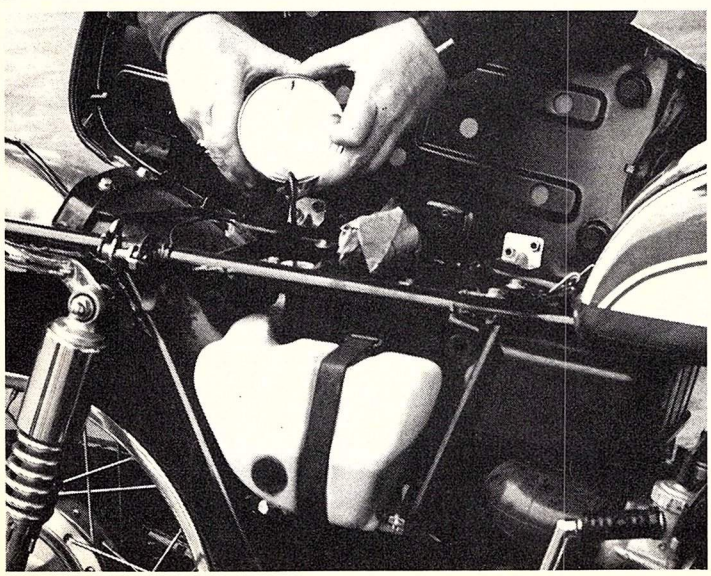
Handlebar controls are simple and easy to find. On the left there's a choke lever, horn button and headlight on/off, turn signal and dimmer switch; on the











Top: *Testing was not without any incidents. Spokes in rear wheel of 750 got so loose wheel wobbled.* Left: *Double-bulb taillight is good feature, industry should take note.* Bottom: *Adding oil to any of the three is a chore. Filler neck on oil tank is small, recessed too far.*

right there's the button for the electric starter on the 550 and 750 and the on/off kill button. Unlike some others, the kill button cannot easily be moved accidentally since it must be depressed rather than turned. Again, very compact and very tidy, adding greatly to the quality look found all over the machines.

Safety considerations that are important include a double-bulb taillight that assures the rider of at least some rear illumination should vibration of the rear fender get to the bulb's filaments. The lights on our test machines were on at all times without any failures, attesting to the quality of Japanese electrical equipment, although each test that involves night riding reconfirms or opinion that even the best of lighting systems is really inadequate once off the well-lit streets and highways.

For the money, with any one of the three you get a lot of motorcycle in terms of engineering time and costly extras, there's no disputing that. What you don't get, as we see it, is a motorcycle that is as good as it should be for the amount of time and money Suzuki spent in development. If the chassis had turned out to be as functional as the hard-to-criticize engines, Suzuki would come close to having the world's best motorcycles. In their defense, the same thing can be said for the other Japanese manufacturers as well; outstanding powerplants but only, at best, fair chassis. That's the way we see it.

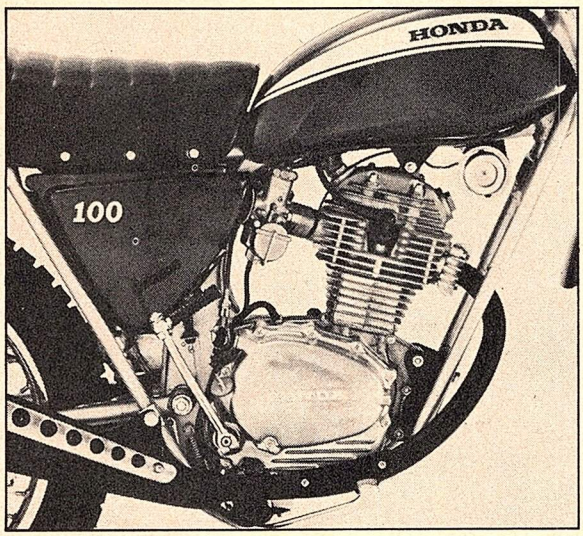
While we've touched on some engine features and the concepts that go to make up the design, we've stayed away from in-depth specifications and concentrated on road impressions formed by the members of the test staff. The accompanying specification chart will tell you all you want to know about the mechanical dimensions and measurable performances of the dragstrip. We'll tell you this as to the placement of each of the three within the world of motorcycling. The 380 is cute, lively and would be right at home as an around towner. The 550 has more muscle and can make do as a touring machine but would probably make the serious tourer start shopping for a more suitable mount after one long trip. It too, is an in-town runabout that has excellent engine performance. The big daddy, the 750, is strictly a tourer, and a good one if you heed the caution of not trying to play racer. It is more at home on the open road with two aboard than most anything we've tested. Last year when the ads said Suzuki was ready to take on the country, the 750 was the one they were talking about. This year their battle song could well apply to the 380 and 550 if you intend to emulate Dick Mann or Mark Brelsford. "Look out 1973! Here comes Suzuki." Put the emphasis on the "look out." •

Suzuki GT380 GT550 GT750 Comparison

	380	550	750
Suggested list price	$985	$1265	$1665
ENGINE			
Type	Vertical 3-cylinder, piston port, 2-stroke	Same	Same
Displacement	371cc	544cc	738cc
Bore x stroke	54 x 54mm	61 x 62mm	70 x 64mm
Claimed hp @ rpm	38 @ 7500	50 @ 6500	67 @ 6500
Claimed torque (ft-lb) @ rpm	28.4 @ 6000	44.1 @ 5000	55.7 @ 5500
Compression ratio	6.7:1	6.8:1	6.7:1
Lubrication system	Oil injection	Same	Same
Cooling system	Air, shrouded head	same as GT380	Water, forced circulation
Carburetors	Three 24mm Mikuni	Three 28mm Mikuni	Three 32mm Mikuni
Air filter	Wet foam	Same as GT380	Paper
Ignition system	Battery/point/coil	Same	Same
Battery	12V 7AH	12V 11AH	12V 14AH
Charging system	Alternator, rectifier	Same	Same
Starting system	Direct kick	Direct electric, indirect kick	Same as GT550
Exhaust system	Four baffled chrome mufflers	Same	Same
DRIVE TRAIN			
Primary	Helical gear	Same	Same
Clutch	Wet, multi-disc	Same	Same
Transmission	6-speed, constant mesh	5-speed, constant mesh	Same as GT550
Shift	Left foot, down-for-low	Same	Same
Final drive	5/8 x 3/8 chain, riveted master link	Same	Same
Ratios : 1			
primary	2.833 (68/24)	2.242 (74/33)	1.673 (82/49)
final	3.000 (42/14)	2.500 (40/16)	3.133 (47/15)
gears			
1	2.333 (28/12)	2.846 (37/13)	2.846 (37/13)
2	1.500 (24/16)	1.736 (33/19)	1.736 (33/19)
3	1.157 (22/19)	1.363 (30/22)	1.363 (30/22)
4	.904 (19/21)	1.125 (27/24)	1.125 (27/24)
5	.782 (18/23)	.923 (24/26)	.923 (24/26)
6	.708 (17/24)	NA	NA
overall			
1	19.82	16.07	14.92
2	12.74	9.74	9.09
3	9.83	7.65	7.14
4	7.68	6.31	5.89
5	6.64	5.18	4.48
6	6.01	NA	NA
CHASSIS AND SUSPENSION			
Frame	Tubular, double cradle, triple backbone	Same	Same
Forks	Telescopic, double damped, internal springs	Same	Same
Rake angle	62°	61°	63°
Trail	4.3 in.	4.6 in.	3.74 in.
Steering angle (L & R)	40°	42°	40°
Turn radius	7.5 ft.	8.2 ft.	8.5 ft.
Rear shocks	Constant rate spring, 5-position adjustment	Same	Same

	380	550	750
Front brakes	Hydraulic, single disc	Same as GT380	Hydraulic, dual disc
Rear brakes	Internal drum, leading/trailing shoe	Same	Same
Tires			
front	3.00 x 19 4PR	3.25 x 19 4PR	Same as GT550
rear	3.00 x 18 4PR	4.00 x 18 4PR	Same as GT550
DIMENSIONS AND CAPACITIES			
Wheelbase	54.5 in.	56.0 in.	57.5 in.
Overall length	83.0 in.	85.0 in.	86.0 in.
Seat height	31.0 in.	32.0 in.	32.0 in.
Peg height	12.0 in.	12.0 in.	12.5 in.
Bar height	42.0 in.	41.5 in.	43.5 in.
Bar width	29.0 in.	29.0 in.	32.0 in.
Ground clearance	5.75 in.	Same	Same
Fuel capacity	4.0 gal.	Same as GT380	4.5 gal.
Engine oil tank	3.2 pt.	Same as GT380	3.8 pt.
Gearbox oil	3.0 pt.	3.2 pt.	4.7 pt.
Cooling system	NA	NA	4.8 quarts
Weight, wet	408 lbs.	480 lbs.	551 lbs.
front/rear	187/221	229/251	262/289
STANDARD EQUIPMENT			
Instruments	0-150 speedometer, quick-reset tripmeter, tachometer	Same as GT380	0-160 speedometer, quick-reset tripmeter, tachometer, water temp gauge
Indicator lights	High beam, neutral, turn signal	Same	Same
Controls			
left hand	Lights, separate high beam switch, turn signal, horn button	Same	Same
right hand	Engine kill switch	Engine kill switch, starter button	Same as GT550
Locks	Ignition, fork, gas cap	Same	Same
Miscellaneous	Center-stand,left hand side-stand, passenger pegs, tool kit	Same	Same
Colors	Canyon Red, Coronado Blue	Lime Green, Hermosa Blue	Royal Red, Royal Blue
Warranty	12 month/12,000 mile	Same	Same
PERFORMANCE			
Gas mileage range under varying conditions	30-53 mpg	35-57 mpg	35-49 mpg
Oil mileage	120 mi/qt	181 mi/qt	304 mi/qt
True speed			
@ 45 mph indicated	41.25	42.25	41.46
@ 60 mph indicated	56.81	57.17	54.87
@ 80 mph indicated	74.68	79.85	75.12
Best standing ¼-mile	15.22-sec, 86.53 mph	14.68-sec, 88.14 mph	14.35-sec, 91.00 mph
Stopping distance (1972 model drum brakes)			
from 30 mph	26.50 ft.	26.00 ft.	30.75 ft.
from 60 mph	126.50 ft.	113.25 ft.	112.25 ft.

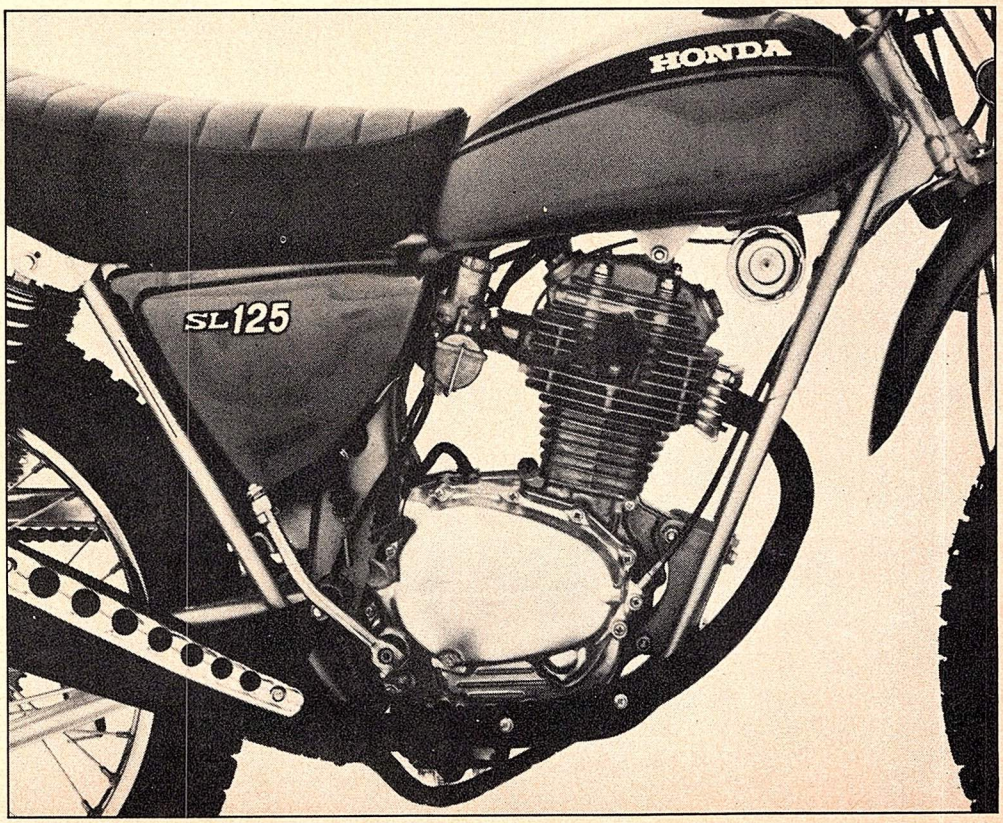
$3 100 125 HONDA VALVE JOB



More complex than meets the eye, freshening up the head and valves at home will save you a fast $40.
By Dave Holeman

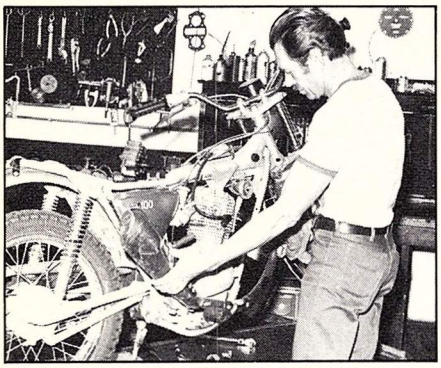
Never judge a book by its cover. After finding out what's involved in doing a valve job on our SL 100 Honda single, we can say; Never judge an engine by its castings. As simple as the Honda engineers have kept the exterior lines of the SL 100 and 125 engines, it is one of the most sophisticated small four-stroke singles in production today. Upon checking with our local Honda mechanic on the cost of getting a valve job done, we were shocked to find that he charges $40 just for labor while the parts cost came to only $2.50 plus tax. Most all of the labor cost is for time only as the actual work necessary to do a valve job requires no special factory tools, always a blessing to any home mechanic.

Not enough can be said about starting out with a clean working area. In the case of the SL 100 and 125, the engine must be removed from the chassis in order to get the head off. Don't try to do anything with the engine in the frame other than timing upon completion of the job. As you will find out, the Honda engineers have the engine in the frame in such a manner that it's a shoehorn fit getting the unit out and in. Plan on this tight fit situation and be patient wiggling the engine back and forth and up and down to get it out and particularly when going back in. Tools necessary are a good set of metrics, the tool kit that comes with the bike, valve compressor, magnet, impact driver, feeler gauge and torque wrench. These are minimum for any valve job. Extras that are very helpful are a wire brush, gasket seal, lapping compound and some bailing wire. One word about gaskets. Use *only* the factory's Genuine Honda Gasket Kit unless it just isn't available. Experience tells us that the accessory brands are not up to the quality of the Honda kit. After lapping-in the valves and checking for a good seal, it will be imperative that the head be washed thoroughly. If you don't have washing facilities, plan on getting a good size pan, brush and cleaning solvent. If this is the first time you have worked on your bike and you're not familiar with it, plan on taking a complete day to do the job as an average home mechanic will take four or five hours to do the job. Be patient, follow the procedures outlined here to the letter and you'll have an enjoyable and profitable day's work putting those extra horses back in your engine. •

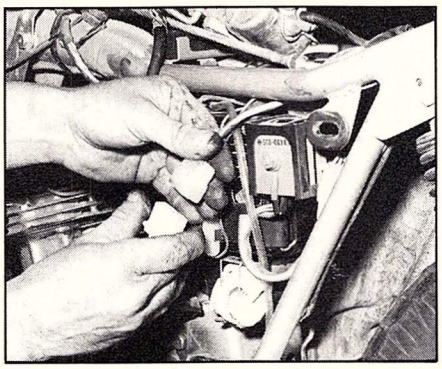


ENGINE REMOVAL:

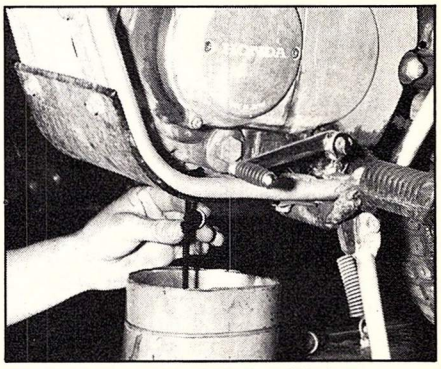
PHOTOGRAPHY BY ERIC RICKMAN



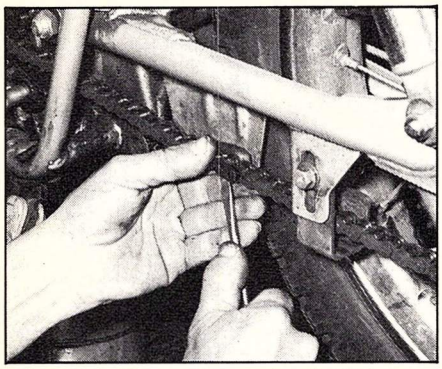
1 Start out with a clean work area and wash the bike thoroughly. Remove the seat, gas tank and muffler. Stow hardware with parts.



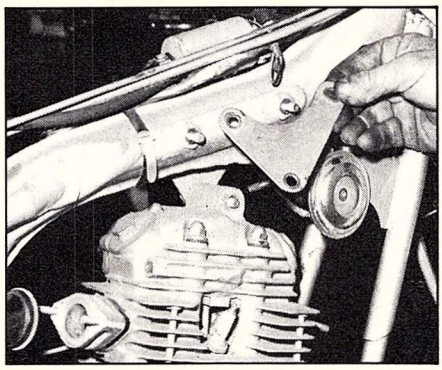
2 Disconnect all wiring junctions going to and coming from the engine. Be careful that this junction is not reversed when reassembled.



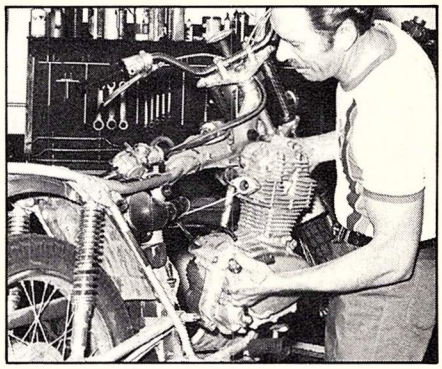
3 Don't be a piker. Drain the oil before removing engine. Disconnect clutch cable from engine. Replace plug to avoid dripping.



4 To ease engine removal take off shift lever and sprocket cover prior to splitting master link. After taking chain off, replace link.

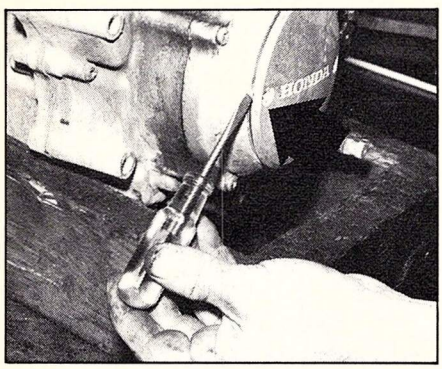


5 Remove head stay plate and carburetor. Now take off the front mounting plates and remove the rear engine bolts and nuts.

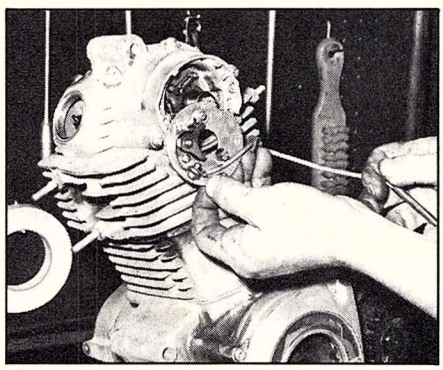


6 Loosen the rear brake arm for clearance. It's a shoehorn fit and a pry bar will break engine loose. Wiggle and lift up and out.

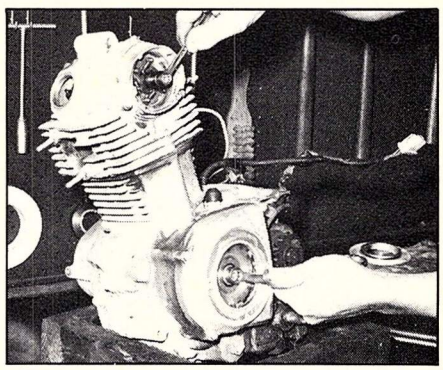
ENGINE DISASSEMBLY:



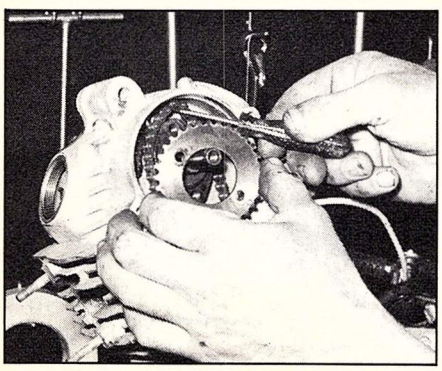
7 A 12" square engine stand of 2 x 4's works best. Pry off alternator cover at slot only. Also remove the point cover on the head.



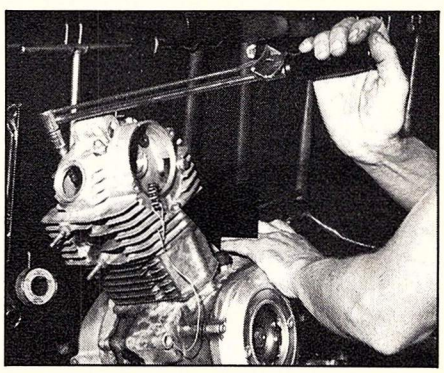
8 Take the point plate out. Inspect condition of points and clean. Replace if pitted. Take off the rocker caps with spanner in tool kit.



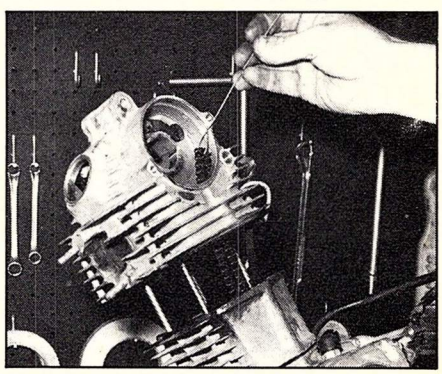
9 Remove centrifugal advance retaining bolt as shown. Take out advance unit and inspect for rust or corrosion. Check spring tension.



10 The point plate retaining casting must come off to expose the cam, chain and sprocket. Hold alternator nut to free sprocket bolts.

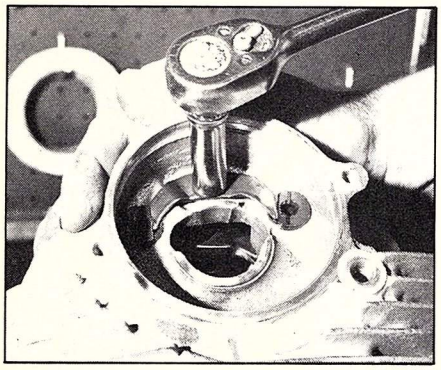


11 Wire keeps chain out of engine. Before removing cam, release valve tension by running engine to TDC. Remove bolts.

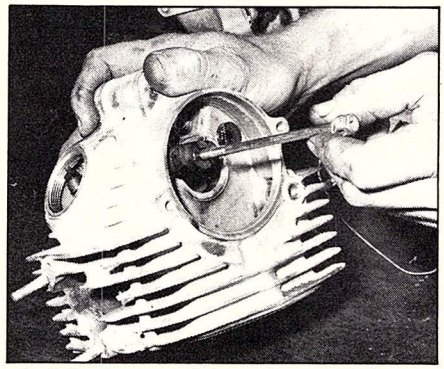


12 Now the head may be lifted off the studs. Hold cylinder down to retain base gasket seal. Hold chain by wire to keep free.

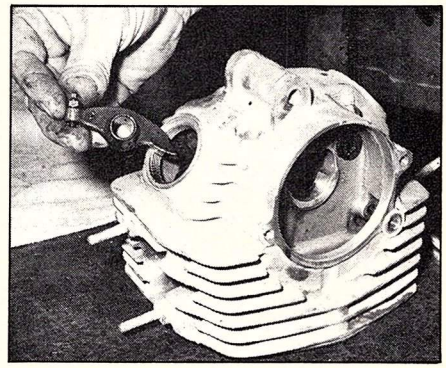
HONDA 100/125 ENGINE DISASSEMBLY:



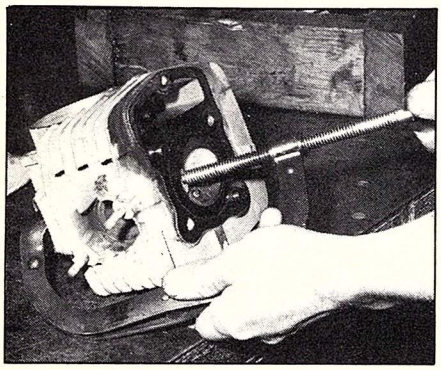
13 Use a socket and remove the rocker arm shaft retaining bracket nut. Inspect the cam journal for possible wear or galling.



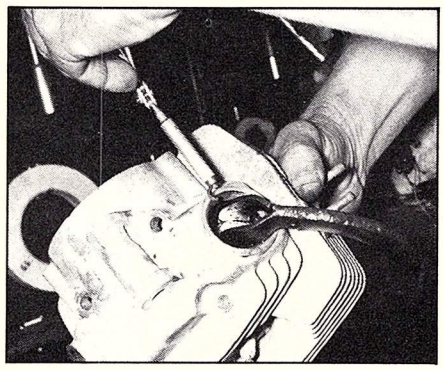
14 Don't try to pull the rocker arm shafts out with pliers. Use a long metric bolt, screw into the shaft and pull out gently.



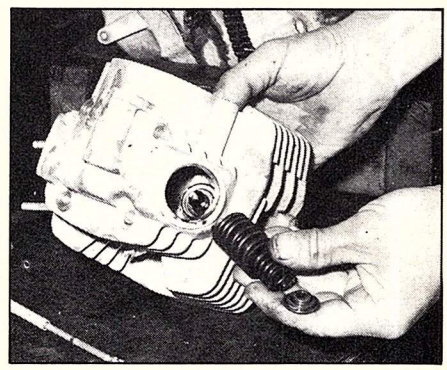
15 The rocker arms will come right out now. Check the adjuster stud and nut for possible thread wear. Inspect follower.



16 A valve compresser will be the only out of the ordinary tool you'll need. The smaller, the better. Borrow or rent.

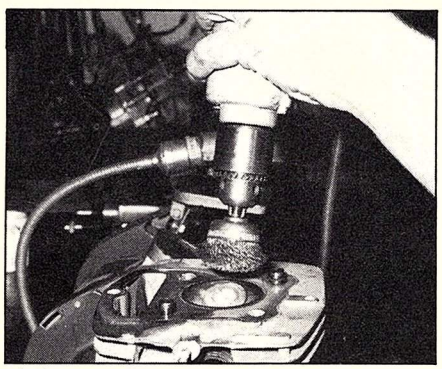


17 Center the open end of the compresser over the spring retainers. Tighten compresser and remove retainers with magnet.

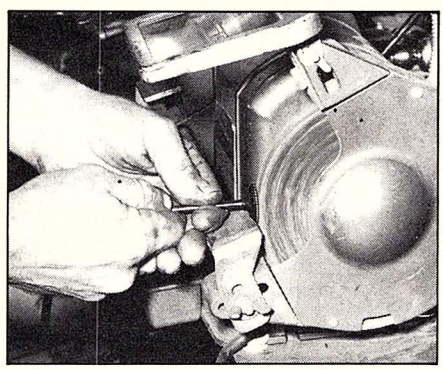


18 Loosen the compresser and you should have two spring retainers, a spring cap and an inner and outer spring.

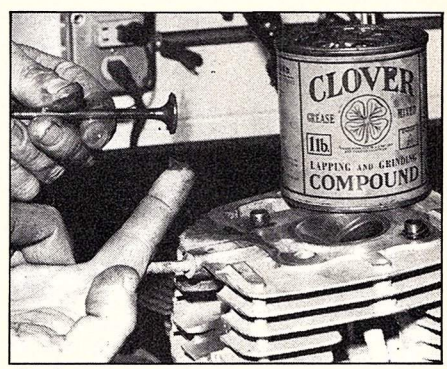
HEAD & VALVES:



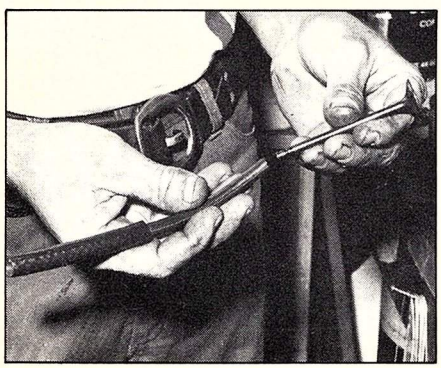
19 Before you take out the valve or spark plug scrape out and wire brush to decarbonize. Protects delicate seats.



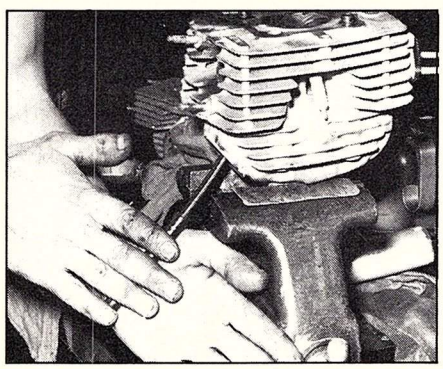
20 Take out the valves and thoroughly clean off carbon and sludge. Be very careful not to gouge or scratch seating surface.



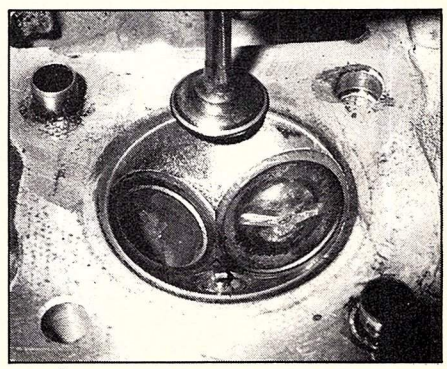
21 Clean both head and valves. Apply lapping compound to valve seat. Lightly oil valve stem before placing in guide.



22 Make your own lapping tool from two pieces of gas line. Place larger over smaller. Small hose fits over stem.



23 Spin lapping tool vigorously, first in one direction then other. When grinding noise ceases, inspect valve and seat.



24 Both valve and seat should have 360 degree lapping surface that must be the same all around. (Continued on page 71)

The 1973 Yamaha Enduros.

RT3 360

Front wheel size increased to 21." 351cc, 2 stroke, single, 7-port engine with Torque Induction. Autolube lubrication system. Primary kick starter. 5 speed constant mesh transmission. Net weight 262 pounds.

DT3 250

Front wheel size increased to 21." 246cc, 2 stroke, single, 7-port engine with Torque Induction. Autolube lubrication system. Primary kick starter. 5 speed constant mesh transmission. Net weight 258 pounds.

CT3 175

171cc, 2 stroke, single, 7-port engine with Torque Induction. Autolube lubrication system. Primary kick starter. 5 speed constant mesh transmission. Net weight 221 pounds.

AT3 125

123cc, 2 stroke, single, 7-port engine with Torque Induction. Autolube lubrication system. Electric and primary kick starter. 5 speed constant mesh transmission. Net weight 214 pounds.

LT3 100

97cc, 2 stroke, single, 7-port engine with Torque Induction. Autolube lubrication system. Primary kick starter. 5 speed constant mesh transmission. Net weight 187 pounds.

GTI 80

73cc, 2 stroke, single, 7-port engine with Torque Induction. Autolube lubrication system. Primary kick starter. 4 speed constant mesh transmission. Net weight 141 pounds.

You have only one thing to decide if you're looking for the best combination street and trail machine for 1973.

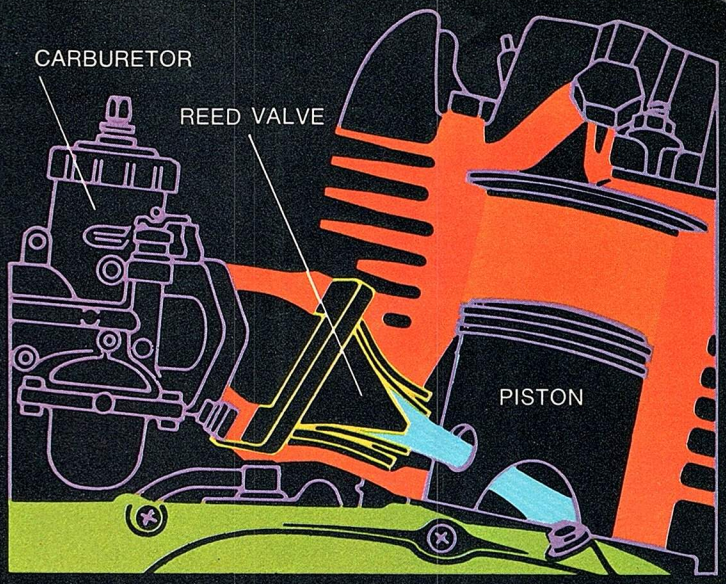
Which Yamaha Enduro?

There are six Enduros, and it's up to you to decide how much you can handle. There's the new GT1, for starters. With its new 80cc engine, we don't know whether to call it a mini-superbike, or a super-minibike. Whichever, it's a machine that will beat anything in its class, and will take a boy just about any place his dad wants to go. It's safe, and it's easy to ride.

Down at the other end of the line, there's the rugged 360RT3. A machine that's built to take you anywhere—on the road or off—and bring you back again. The RT3 is the ultimate motorcycle for both street and trail—combining the power and acceleration you want on the street, with the rugged strength and easy handling you'll need on the dirt.

The middle of our Enduro line looks like the top of everyone else's. Any one of these machines will take you just about any place you'd care to go. The only questions are how fast, and how far? And what size of boulder, ditch, or stump do you want to argue with?

All of our 1973 Yamaha Enduros are equipped with the famous Enduro front forks, double cradle tube frame, Autolube, five-way adjustable rear shocks and the powerful, reliable Yamaha two-stroke engine. Then



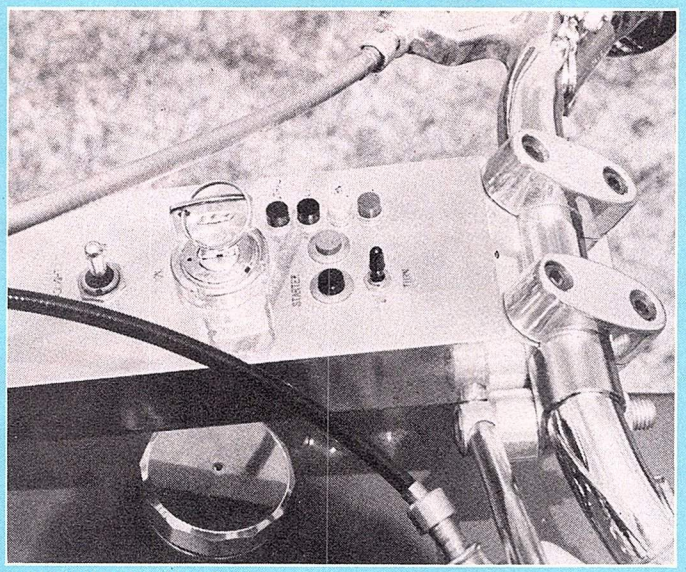
Torque Induction. The intake port is equipped with a reed-type valve between the carburetor and cylinder. This prevents "blow-back" of the mixture into the carburetor. Torque Induction means increased torque at low speeds, immediate throttle response, more precise intake and exhaust, and better fuel economy.

there's the exclusive Yamaha feature that makes our competition maddest of all—Torque Induction. That's our reed-valve fuel system that improves torque at low speeds, and response at all speeds.

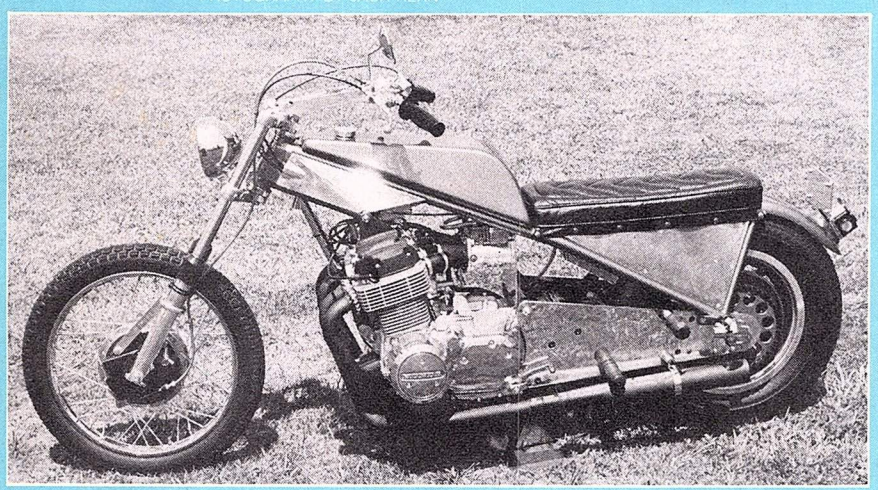
Compare the quality, design, handling and total overall performance of Yamaha. You'll see why the Enduro has become the motorcycle industry's synonym for the ideal combination street and trail machine. And whether you own something else now, or or whether you're thinking about owning a motorcycle for the first time, you can really come to only one conclusion. If you want the best, you'll own a Yamaha.

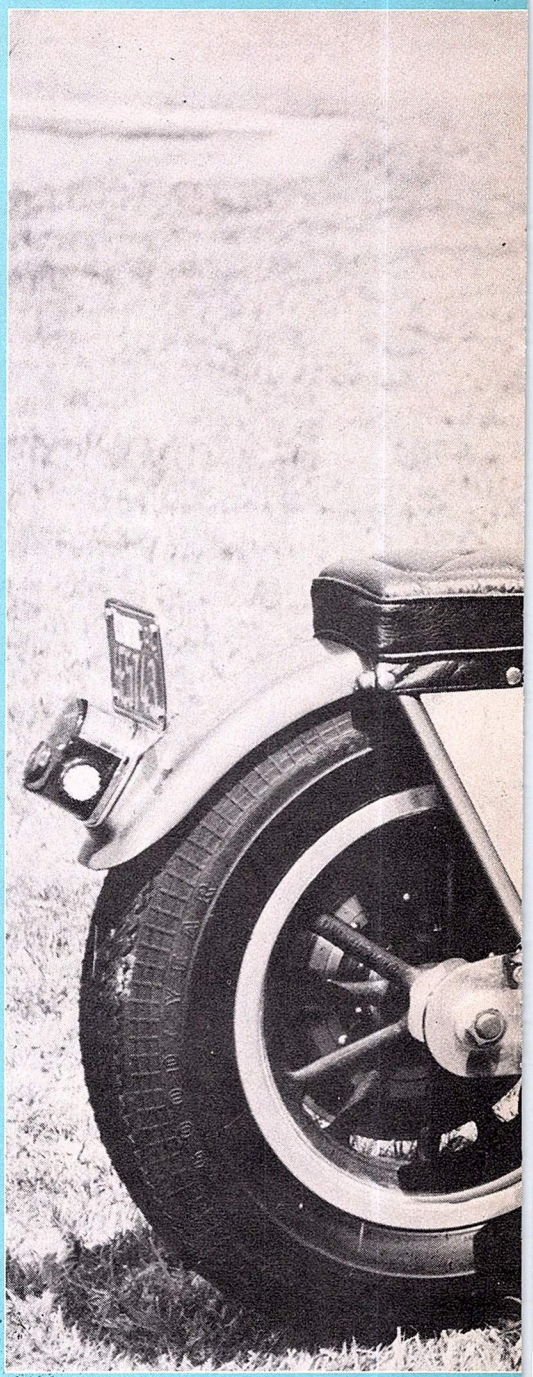
Visit your Yamaha dealer the next time you have a few minutes. It won't take him long to show you why Yamaha is called the better machine.

Someday, you'll own a Yamaha.

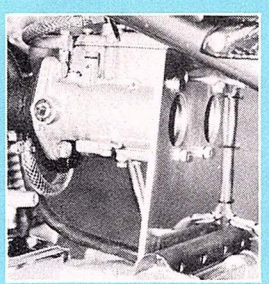


PHOTOGRAPHY BY JACK HERN



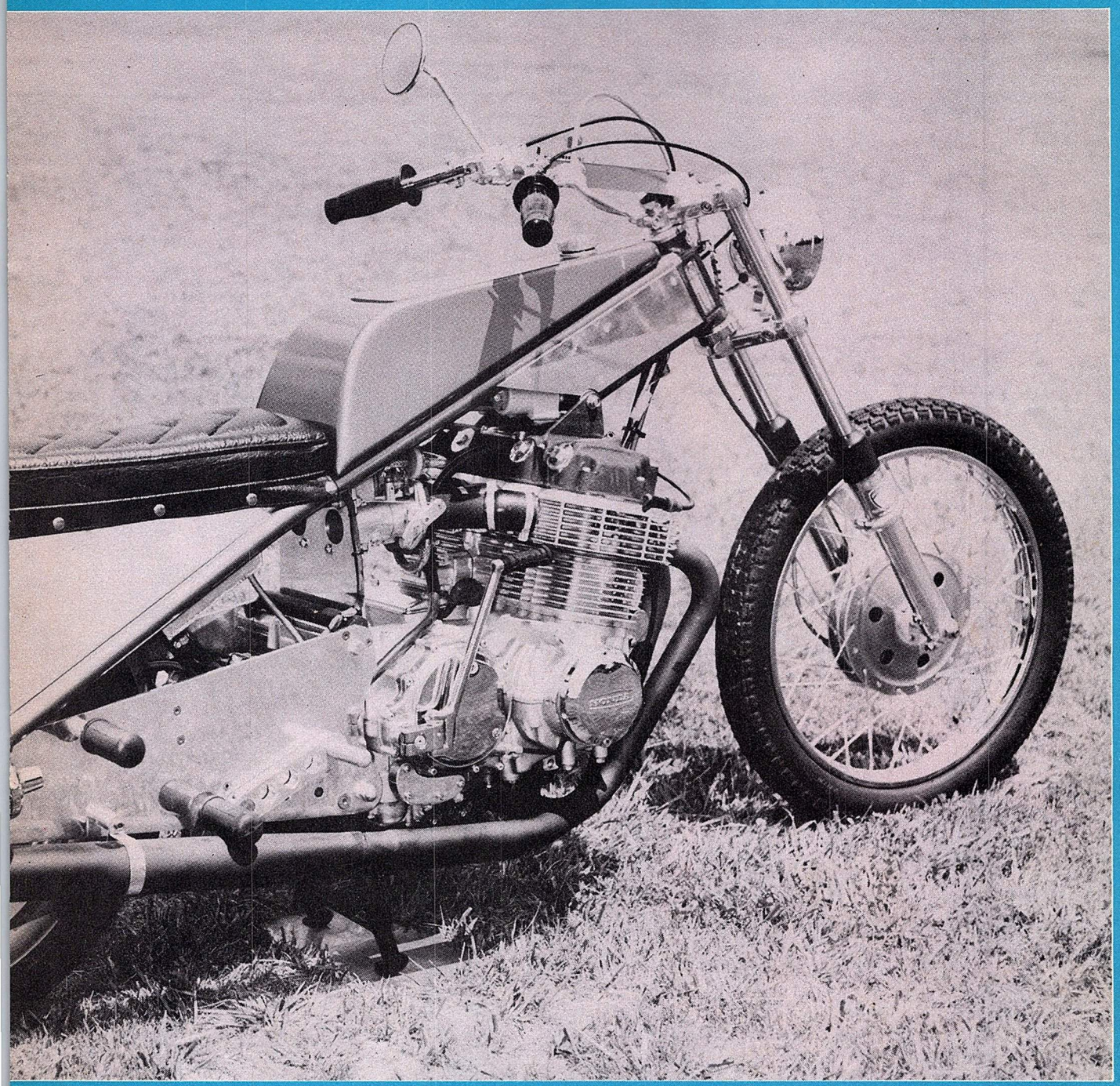


STREET LEGAL SWIFTY



Mechanical innovations abound on this 138 mph streeter.

The ubiquitous 736cc Honda Four adorns yet another far out custom cycle. Constructed by the Prince brothers, John and Roger, this radical 390-pound pavement missile shrieks through the quarter in the 11's yet is completely street legal and easy to ride on public thoroughfares. Building around a special jigbuilt mild steel tube frame, the Prince brothers mated a Honda CB-160 Baby Hawk front hub/brake assembly to a pair of Harley Electra Glide forks. The forks were shortened three inches to lower the bike's center of gravity. Rounding out the front end is a Hap Jones custom headlight and a 19-inch chrome steel rim which sports a Mitsubishi 2.75x19 universal tread skin. Just aft of the headlight is a Prince brothers-built aluminum two-gallon wedge gas tank that is securely attached to the frame via rubber straps and one high-tensile-strength bolt. The 12 sided gas cap is machine threaded and O-ringed for positive sealing. Right above the premium tank are the distinctive superbars which house the starter button, turn signal switch, ignition key lock and headlight toggle. Neutral, high beam, turn indicator and charge warning lights are grouped on the aluminum monopod bar panel also. The heart



of the whole bike is the 1970 Honda Four which not only gives the cycle 88 hp for motivation but is a stressed, integral member of the frame, aiding rigidity. Two sturdy rear aluminum plates, one on each side of the streetster, tie the frame together as one unyielding assembly. A pair of Jardine two-into-one exhaust systems, dual throat DCOE 42 Weber carburetors and an experimental high-lift cam give the Honda mill its extra urge to rev while a 5.60x15 tubeless Goodyear Marathon tire mounted on a 12-spoke American Racing magnesium wheel transfers the engine power to the ground. Ensuring engine longevity is a 3.5-quart oil sump constructed out of six pieces of sheet aluminum. Filling is easily done by unsnapping the seat fasteners, lifting the seat off and unscrewing the oil cap. In case the side covers have to be removed, they're made quickly detachable, being joined to the frame via Dzus brackets. For ease of parking, a roll-on center stand is used instead of a side prop. And when zipping along, Bates passenger and driver rubber footpegs and rectangular pancake dual custom saddle enhance comfort. Warning the rear guard is a Honda mini-bike taillight perched atop a Prince-fabricated steel rear fender. A modified Honda 750 disc is used to stop the rear wheel from turning while a C-T alloy rear sprocket accomplishes the exact opposite function. The Prince brothers from Hayward, California completed this street legal swifty in 14 months and they used about $1900 worth of materials. The brothers mixed their own blend of metallic blue paint to achieve the desired custom cycle sparkle, and their extra effort was rewarded. At the Oakland, California Roadster Show in 1972, the Prince brothers' 138 mph two-wheel custom won first place in the street class. •

Motorcyclist action showcase

Ron Stockman on a 250 Bultaco kicks up wild dirt wake on way to 4th at Ontario moto-cross. Photography by Gerry Stiles

On the road, off the road, or both—no matter what kind of riding turns you on, Honda has you covered.

Super Sport. Seven smooth-riding beauties for the road. From the snappy new single-cylinder CB-100 up to the three mighty four-cylinder power houses. The King of the Road 750 Four. The streamlined 500 Four. And the newest Honda of all—the 350 Four.

Motosport. Light weight. Dependability. And power. That's what you need in a dirt bike. That's what you get in a Honda Motosport. Four quick-moving single-cylinder models—from the scaled-down SL-70, a bike perfect for a teenager, to the rugged new XL-250. And two powerful twin-cylinder dirt movers—the SL-175 and SL-350.

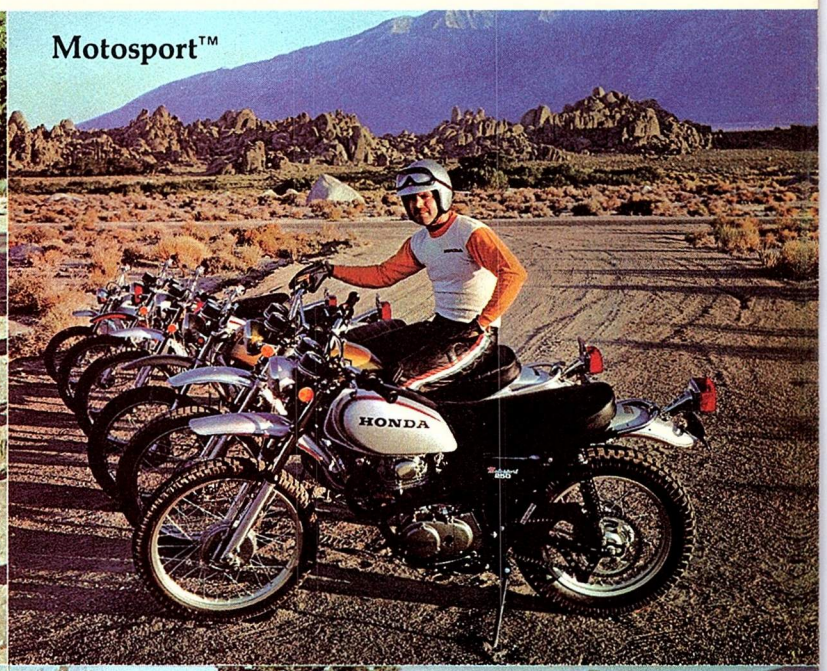
Scrambler. Ride where you will with a Honda Scrambler. City or country, road or rough. Five rugged models. Two singles and three twins. All with rugged, distinctive Scrambler styling.

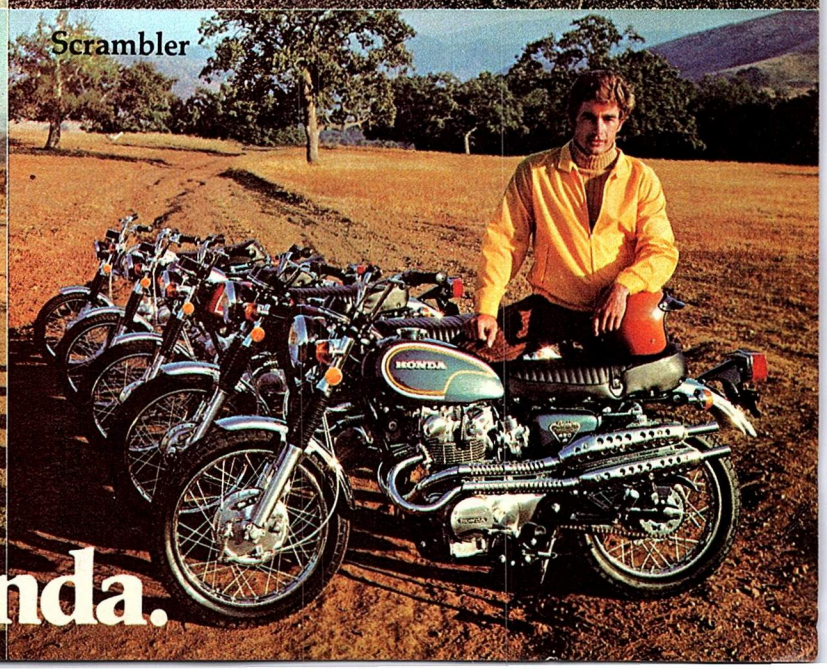
Trail Bike. A Honda trail bike lets you see the country the way it should be seen—close-up. Either the automatic or hand-clutch model of the popular CT-70 is perfect for teenagers. And the dependable CT-90 is a must for the outdoorsman.

See your Honda dealer soon. See the 25 exciting models he has to offer, including two great minibikes for the kids. All with strong warranties. Matching you with the right bike is his pleasure.

What's your pleasure?

For safety, we recommend that you always wear a helmet and eye protection, keep your lights on and check the local laws before you ride. For a free color brochure, write: American Honda Motor Co., Inc., Dept. NX, Box 50, Gardena, California 90247.





Honda.

TOURING TIPS

Roadside Trouble Shooting:

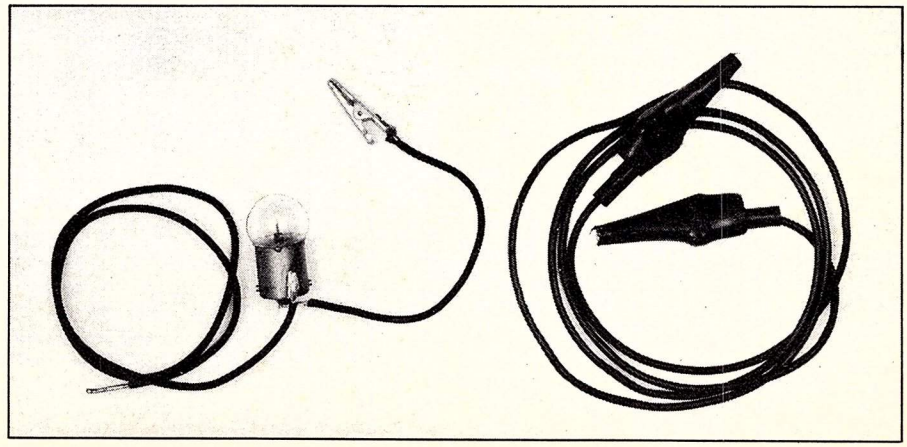
If this won't get you home, use a rope.
Story and photos by Eric Rickman

If you are a newcomer to the pages of Motorcyclist, this little opus on roadside trouble shooting may be just in time to save you a long walk home. The Touring Tips series began with our May '72 issue, and if you're considering any serious touring we suggest you obtain all the back issues as they span from where to go, to how to get there, including what to take and what to wear along with a few tips on outdoor camping with a cycle. Specifically we suggest you obtain the June issue in which we covered the preparation of your cycle for touring. If you read and heed that story, you may never need the information in this story, but just in case, let's take a look at some of the million and one things that can go wrong when you're out riding. We must assume that being a prudent person, or having read our preparation story, you have read and memorized your service manual. If you don't know anything about your machine, there's no way you're going to be able to fix it, let alone begin to try and find out what's wrong. The next assumption is, having read the preparation story, you have a few of the bare essentials along with you on the bike. For those who missed the story here is a quick outline of the basics you should have along: tools, including a few special items we will get to in a moment, spare bulbs, fuses, plugs, and a brake and clutch cable if it's to be a long haul. There are some quick-repair cable ends available that can be attached with a screwdriver if the cable isn't broken. They are small and cheap, get a few. A spare chain link and half link along with a small chain breaker are other musts, not to mention a tire pump and patching kit with tire irons. There are pressure cans with sealant included for quickie repairs that work quite well. Be sure and get one that has a screw thread attachment to the valve stem, push-on types can blow off unexpectedly, and that sealant is grim in the eyes. While we're on the subject of sealants, bring along a small tube of that new silicone sealant. It will stop both gas and oil leaks by merely daubing it on. A point file or a couple of flexstone abrasive strips are a must, spare points and condensers are handy too, and don't forget electrical tape. The pair of special items I referred to earlier are a jumper wire and test light. To make the jumper (better make two while you're at it), attach an insulated alligator clip to each end of a three-foot piece of insulated wire (you will bless us later). The test light consists of a small bulb of proper voltage to match your bike, with a couple of foot-long wires soldered to the base, one to the body shell and one to the center contact. If you want to be fancy, attach an alligator clip to one of the wires. Stow this little jewel where it won't get broken. As a last resort you can use the tail light bulb. Last but not least, wrap about 10 or 15 feet of light tow rope around the handlebars, or on the frame somewhere.

Now let's set the scene: you're riding along over hill and dale without a care in the world, and the engine quits, or just runs out of power. Don't go for the panic button, and DO NOT start peering down at the motor as you coast to a stop. This can get fatal, and besides you wouldn't be able to utilize the following pearls of wisdom. DO keep your head up, signal if needed and get well off the road. While you're doing this, give some thought to what happened, and how it happened. The way an engine quits can give a clue to what to look for first. Did it just plain quit? Look for a loose or broken wire in the electrical system. Did it cough a few times, and sort of stumble to a stop? Could be a loose wire, or fuel starvation. Engine still runs, but no go power? Could be clutch, transmission, or maybe the chain broke or jumped off. Engine just began to slow down and finally quit, accompanied by a loss of power? If the barrel is real hot maybe the piston seized. This can also happen very suddenly and lock up the engine almost instantly when running hard, particularly in two-strokes. You will be lucky if you get de-clutched in time to avoid a fall in this type of situation. Did the engine slow and quit, accompanied by lots of smoke from the exhaust pipe and crankcase vent? Could be a burned valve or holed piston. Were there accompanying grinding and clanking noises (the worst kind)? This could be broken valve, piston, rod, or transmission gear. Now you begin to get the idea.

After you have pulled well off the road, try the lights and horn, maybe you blew a fuse or the battery wire fell off. Check the kill switch, quite often it gets bumped to the off position. We know it sounds stupid, but it happens. Take a peek in the gas tank. That's pretty stupid too, but we would like to have a nickle for every time some tourist runs out of gas.

Try kicking it over. If the engine won't turn over and the barrel(s) are really hot, maybe it is frozen stuck. Let it cool off and try again. If it is a two-stroke and you get it turning over again, drain some oil out of the crankcase and add it to the gas tank, your automatic oil injector has probably quit. This may get you home. If the lights and horn work but the engine won't start, the first place to look is the spark plug, it may be fouled. Replace it if it's real dirty. Check for ignition spark by connecting the plug to the ignition wire and holding it firmly against the engine as you kick it over a couple of times. No spark? Maybe it's leaking off between the coil and plug. Check the high-tension plug wire for cracks or chafed spots. Here is where you're going to get to use your test light. Pull the plug wire out of the coil and check for corroded ends (some are molded into the coil, be sure yours is removable first). Now clip the test light to a good ground, usually an engine fin, and with the coil end of the plug wire against the battery's hot terminal, stick the test light probe into the plug cap connector. If it doesn't light, the plug wire is broken or has a bad connection at either or both ends. The plug cap usually screws off, you may have to chop off about a half inch and screw the cap back on to get a good connection. Assuming there's no spark and the plug wire is okay, take a look at the points, are they opening, are they closing, are they clean? While you're at it, put a finger over the plug hole and check for compression as you kick the engine over. There should be enough compression to pop your finger off the plug seat quite briskly. No compression? Get out the rope, you can't fix this one beside the road. If it's a multi-cylinder, you might be able to limp in by leaving the plug out. If you have compression, slip a flexstone or point file between the points and give 'em a little clean up pass. Often a drop of oil or piece of grit can get on the points and every-



A trouble shooting light and jumper wire will find and fix most electrical problems. Make two jumpers using insulated alligator clips.

thing quits. The points, of course, should close, and they should open about the thickness of a business card (check the manual). Is there juice getting to the points? This is where the test light comes in handy again. If you're on a machine with battery ignition (we will get to magneto systems later), clip one wire to the engine and probe the point wire with the other. With the key on and the points open, the test light should go on when you touch the probe lead to the point wire or arm. It should go out when the points close, indicating that they are making contact. If there's no juice at the points you're going to have to trace the circuit all the way back to where there is some juice. You can work from either end, but it's advisable to check the fuse at the battery first. If it's blown, jumper the test light across the fuse contacts, if it lights with the key off, or burns brightly with the key on, you have a short to ground somewhere, and installing another fuse isn't the answer. You have to find the short.

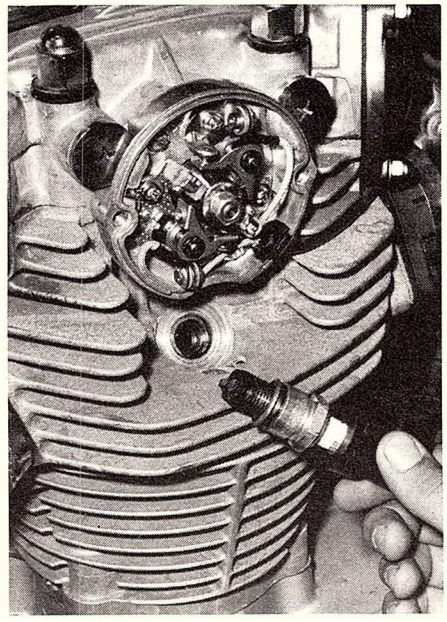
Hunting for a short is a miserable job as the wires are enclosed in a loom and you will have to pull the gas tank off to chase the circuit down. Wiggle the wires around with the test light connected across the fuse. If you get a flicker it will indicate the general area of the problem. If the fuse is okay, check the battery for juice by connecting the test light across the terminals. If the battery is dead, a tow might get you started. Check the voltage regulator and alternator/generator when you get home. Battery is full of juice? Let's see where it's going, or isn't going in this case. The outgoing system could be perfect, but if the battery ground connection isn't good, tight and clean, the current can't get back into the battery to complete the circuit, so check this first. Now we turn to the rest of the electrical system. This is where the manual comes in handy. The wiring diagrams are color coded so you can trace each wire from the switch to its destination. Using the test light, start at the battery and work your way to the switch, checking for current at each exposed point, or loom connection. Be sure points are open or they will ground the circuit. Quite often the bullet connections become corroded and the mere act of disconnecting and reconnecting the wires will fix the problem. Clean all the connections as you go through the circuit. You can of course check for juice without a test light by lightly flicking the end of the wire against a bare spot on the frame and watching for a spark, but you're taking the chance of blowing a fuse every time you try it.

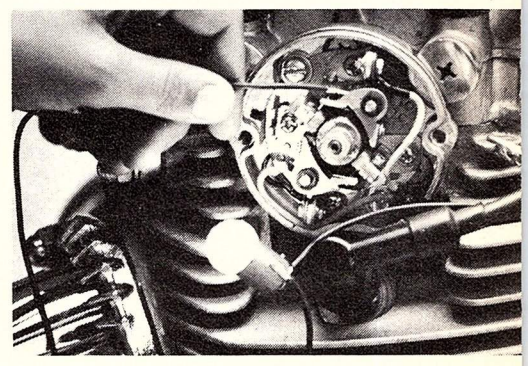
The main power lead from the battery will go to the switch so check for current both into and out of the switch. Quite often the switch will become loose and faulty because you have several keys or a big key tag on your key ring that flaps in the breeze as you ride, shaking the switch apart. Usually the current goes from the switch to the coils, then to the points. Check for current into and out of the coil(s) (often a coil will develop an internal short). Usually the coil(s) secondary circuit is internally grounded through the mounting bracket so be sure the bracket is bolted to the frame solidly, it must provide a good ground connection. Needless to say, watch for loose or broken connections as you work your way along the circuit. If you have current at one point and none at the other end of the wire, there is a break or short somewhere in the loom. This is where the jumper wire comes in. Just bridge over the section that isn't conducting current. Quite often it's much quicker and handier to just jump a connection directly from the battery to the coil, or from the coil to the points if the trouble is in that portion of the system. Now you have juice at the points. They are clean and working, but still no spark. Install a new condenser just for kicks. It might be shorted and there's no way to test it properly on the road. If you have gone through all this and still no spark, the best thing we can recommend now is the rope. If you have one of those new exotic CDI systems, checking for loose connections and broken wires is about all you can do.

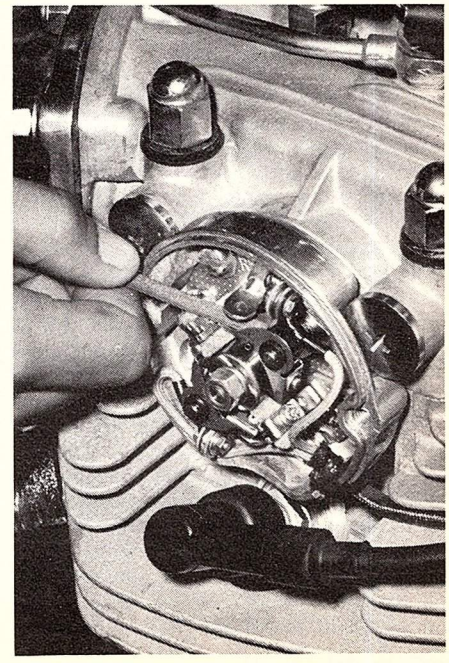
Up to this point we have dealt with the battery-powered ignition system found on most popular four-stroke cycles that utilize a generator/alternator to keep the battery charged. Some four-cycle and almost all two-cycle machines use a magneto type system that produces current only when the engine is running. If the cycle has lights, a small battery will be incorporated in a separate circuit to power the lights. The mag produces alternating current that is rectified to direct current then routed through the battery. Engine speed dictates the amount of current generated, and the battery, in addition to storing current, acts as a surge damper to keep the lights from burning out when the engine is over revved and too much current is generated. Keep the battery acid at the proper level at all times. If the lights seem to flare brighter at high R's check the battery level, a dry battery will allow the lights to burn out. The Lucas electrical system found on most English bikes utilizes a zener diode in a heat sink to bleed off excess current. The heat sink must be grounded to the frame properly. If your Limey quits, disconnect the zener diode and try starting it. When a zener burns out it shorts the entire system to ground. You can run with the zener disconnected, but turn your lights on to help prevent overcharging the battery. Conversely, if the zener ground connection is poor you will burn out the lights and boil the battery from excess current at high rpm.

Now here you are stalled beside the

TOURING TIPS





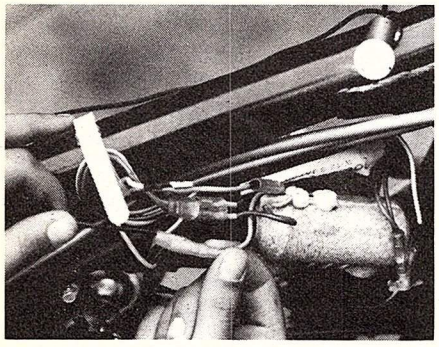


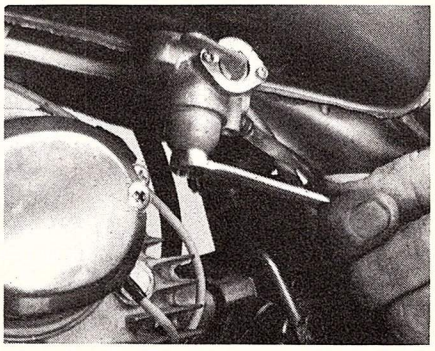
ABOVE: *After looking in tank and checking all switches, check for spark by holding plug against barrel and trying to start the engine.* TOP RIGHT: *Check for juice at points with trouble light by grounding one wire then probe open point arm with the tip of the other lead.* RIGHT: *Just to be sure, clean points with a few passes of the flexstone or point file. Often a strip of paper will remove oil film.*

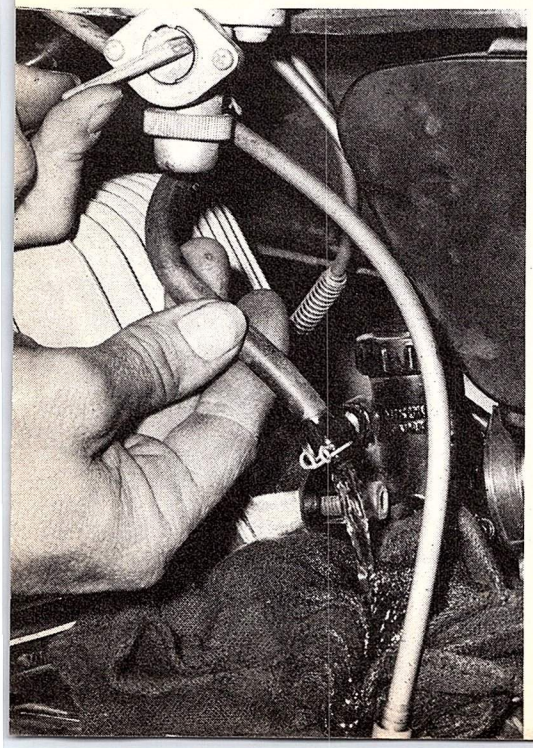
road on your two-stroker. You have looked in the gas tank, checked the switches, etc., as mentioned at the beginning of this article. You have the plug out and are checking for a spark as you kick the engine over and you're ready to check the points. If you haven't read the manual you're not even going to find 'em, as most Japanese magneto systems enclose the points and most of the electrical components inside the flywheel where they are difficult to get at or inspect. With no current source available you have no way of checking circuit continuity other than visually. Look for loose or broken wires, including bad connections. Be sure and check that coil bracket ground. If you're really serious about this trouble shooting bit and ride a cycle with a mag system, it might be wise to take a few minutes and build a small continuity tester. It's just like the trouble light except you must include a small flashlight battery series-wired into the tester circuit and use a corresponding flashlight bulb as the test light. This will provide the needed battery power to test the various circuits. Study that manual, some magneto circuits are exactly opposite of battery type circuits, particularly in the breaker point system. Since you can't get to the points without removing the flywheel with a special tool, and they are wired to ground through the current generating coils, your tester won't help here. About all you can do is peek through the flywheel openings and see if the points are opening and closing properly. Hit 'em with the point file just to be sure they are clean. Actually there really isn't much you can do with a magneto type system other than check the points and look for loose or broken wires, bad connections and shorts. The condenser is usually buried inside the flywheel assembly so forget it.

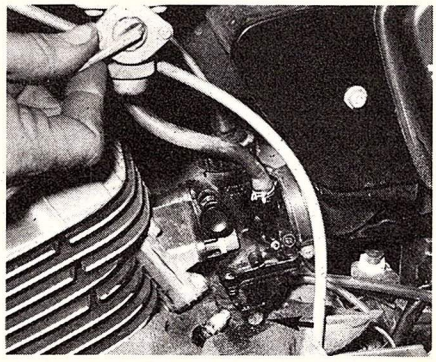
Perish forbid any of this happens after dark, or the lights quit while the engine keeps running. Right here is where a little foresight in bringing along a flashlight will really pay off. A buddy's headlight will help. If the main fuse goes, everything will quit including the engine. Checking the lighting system is just like checking the ignition, start at the light and work back to the battery, or start at the battery and work out to the light, checking for juice at each connection and into and out of both the main switch and dimmer switch. Look for loose or corroded connections and broken or shorted wires. If you're on a Limey, remember that zener.

This is why you memorized the wiring color code, each circuit has its own color code. As a last resort, use a jumper wire to connect the headlight directly to the battery.









TOP LEFT: *Use trouble light to check for current both to and from the coils. Be sure to clean all connections as you check circuit.*
LEFT: *Now check the fuel circuit by looking for flow, just as in the electrical system. With hose off carb connection fuel must flow.*
TOP RIGHT: *If fuel fails to flow, check the petcock filter bowl, watch for water and dirt. Remove tank cap and blow through hose.*
ABOVE: *To check for flow into carb, remove float bowl side or bottom plug. If no flow, remove bowl and check needle valve for dirt.*

So much for the electrics. You have spark at the plug, compression, and there's gas in the tank, but it still won't start or run. The only thing left that can be out of whack is the fuel system. Put out that butt, and disconnect the fuel line at the carburetor. If no fuel flows with the petcock open, remove the tank cap and blow back through the line. Often this will unplug things long enough to get home. Most petcocks have a built-in dirt trap and filter screen; take this apart and check for dirt. If fuel flows to the carburetor, the next step is to pull the carb bowl drain plug, watching for water and dirt. Open the petcock and observe if fuel flows through the carb. If there isn't any fuel, you're going to have to pull the carb. Remove the bowl and check the needle valve and float assembly. It can get dirt in the orifice, blocking the flow, or stick either open or closed. If it sticks open you will know about it as fuel will be running out of the carb in a steady stream. Don't be too hasty; first check to be sure the carb is on tight. An air leak at the mounting flange will make for hard starts and lousy running, and be careful when tightening that flange. If you have to remove the carb and/or bowl, look closely for dirt, then slip the float pivot shaft out of its mounting. This will free the float and expose the needle valve. Check for dirt and free it up if it's sticking. If there was any evidence of dirt when you first pulled the bowl plug, take a look at the little brass jet that is usually submerged in the bowl's gas reservoir. It may be plugged by a small dirt particle. Jets can plug up even if gas is flowing through the carb. There's another thing you might check. Remove the air cleaner and look into the carb intake, if possible. If not, stick your finger in the carb throat and be sure the slide is opening; the throttle cable could have broken. Be sure the slide needle rises with the slide. They have been known to vibrate loose, dropping down and blocking the main jet. Be very careful when reinstalling the carb. Tighten the flanges down slowly, evenly and carefully, or you can warp the flange, resulting in an air leak, broken flange, or, worse yet, warp the carb thereby binding the slide.

You can check everything, have everything working and it still won't start. It could be out of time, or in the case of a two-stroke there could be a blown internal seal. Check the muffler. A baffle could come loose and plug the exhaust system. As we mentioned at the beginning, there are a million and one things that can happen. We can only cover a few of the more likely and common malfunctions that you can fix beside the road.

Just remember, there's always the rope. It's the best all around insurance you can have. Don't tie it to the bike, take a couple of turns around the triple clamp and hold the loose end in your hand so you can let go if you get in trouble. This will guarantee that both you and the bike get home, and that's what it's all about anyway. See, we told you we would get you home (one way or another). ●

PEPPERELL

"Experts Only" turn in great performances at big eastern moto-cross. By John T. Jo

What's a Pepperell? It's a professionally run "experts only" moto-cross race held in rustic Pepperell, Massachusetts which in autumn '72 drew over 120 dirt competitors, nearly 6,000 spectators and offered $2300 worth of prize monies. The man in charge, Bob Hicks, President of promoters Inter-Sports, Inc. and chairman of the Sixth Annual Pepperell Grand Prix stated, "We've updated the 1.2-mile moto-cross circuit six times in the last six years and have ideal track conditions for today's racing, no dust, no excess mud nor deep rain drenched water pools."

Hicks added, "For rider incentive, $500 will be paid to the overall winner of each class 125, 250 and Open plus $100 will be awarded to first place winners of each heat. Our start/finish line track width and starting gate accommodate 40 cycles maximum so in the crowded 250 and Open classes, two preliminary heats will be run in each category with the top 20 contestants out of each "A" and "B" heat advancing into the final round. The 125 class will be run in Pepperell's customary 40-man two heats. All overall positions will be scored on the international moto-cross scoring system and each heat will be 20 minutes in duration."

A nice safety feature and consideration on part of the sponsors was the hiring of a professional 14-man first aid and ambulance crew for the riders' benefit in case of a spill, and the "no entry fee" charge. The entrant pays $3 admission as do all spectators but the $3 the rider contributes goes into a special riders' benevolent fund which pays for workman compensation to any competitor that gets injured, until he can resume work. However, spectators' admissions contribute directly to funding the $2300 Pepperell purse.

After the two-stroke smoke cleared and final checker flag wave, Jeff Smith from Quebec, Canada, riding a 125cc Bombardier, Dave Clemence from Johnston, Rhode Island, on a 250 Bultaco and Jim Ellis from Cobalt, Conn., flogging a 360 Yamaha had four things in common—they each won both their heats, $700 in prize money and an overall first place class trophy. Furthermore, each of them turned the fastest lap per class on their way to victory; Ellis 1:34 minutes in 500cc, Smith 1:38.5 minutes in 125cc and Clemence 1:39.5 minutes in 250cc class. •

PHOTOGRAPHY BY MICHAEL PHILIP MANHEIM

Left: *Jim Ellis of Cobalt, Ct. flew his Yamaha in fine fashion to a clear victory in Open class heat as well as final.*
Above: *Jeff Smith (10) came down from Valcourt, Que., Canada to show youngsters the quick way home with prototype 125cc Can-Am.*
Right: *Starting line is a study in reflexes as some riders are getting underway while a few are still reaching for clutch.*

FINAL RESULTS

125cc
Jeff Smith—Bombardier
Carl Plussman—DKW
Bucky Barlow—Bultaco

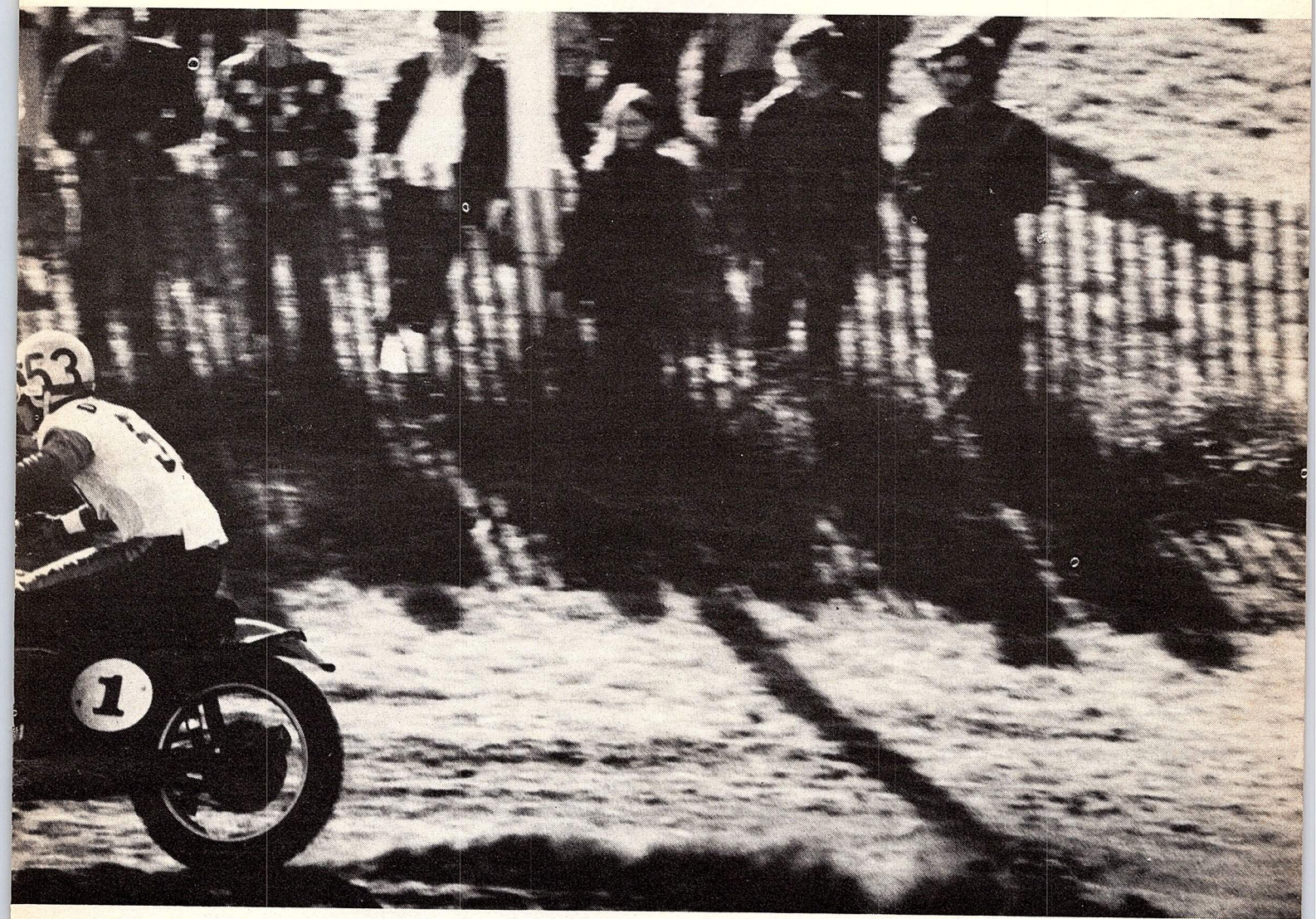
250cc
Dave Clemence—Bultaco
Seppo Makinen—Husqvarna
Kip Komosa—Bultaco

500cc
Jim Ellis—Yamaha
Bob Thompson—Husqvarna
Tony DiStefano—CZ

Continued

PEPPERELL

Above: *Perfect straightaway traction is demonstrated by Anthony Distefano, Bristol, Pa., on way to 3rd in Open.*
Far left: *Winner in 250 was Dave Clemence (90) on a Bultaco. Dave hails from Johnston, R.I.*
Left: *As races went on, cornering such as this brought rocks to surface.*
Right: *Dapper Jeff Smith explains unspectacular, sit-on-the-seat, no-wheelie riding style. He just finishes first.*
Far right: *Chris Wallace of New Fairfield, Ct., rode a consistent race but finished out of money.*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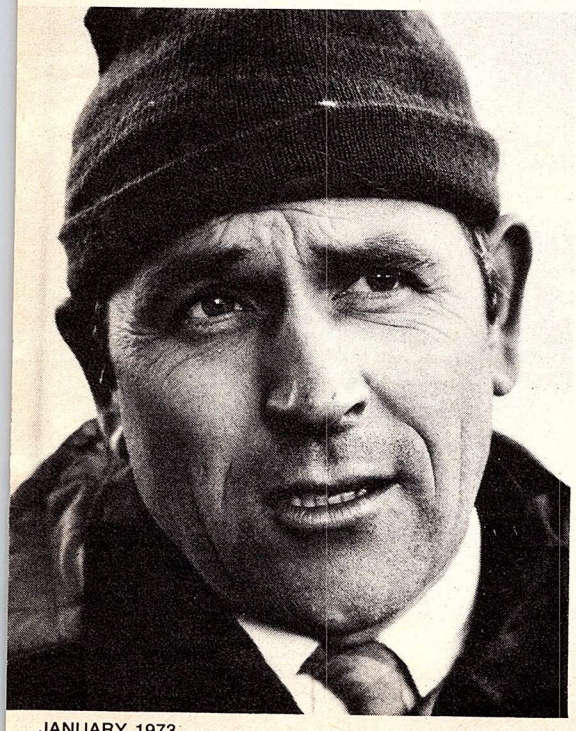
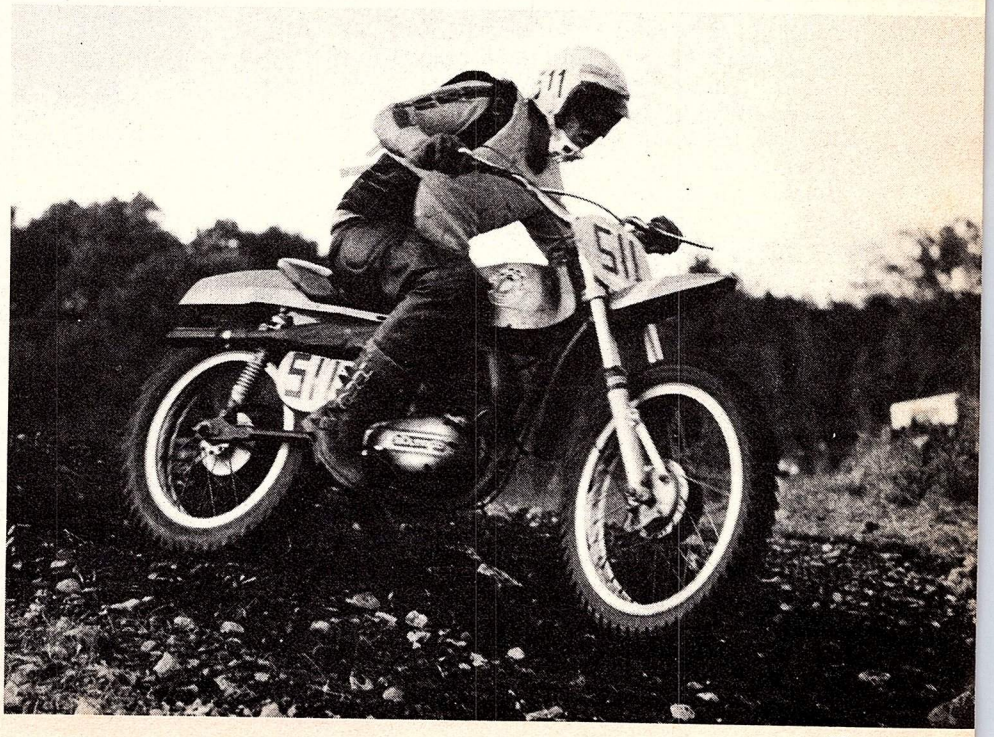
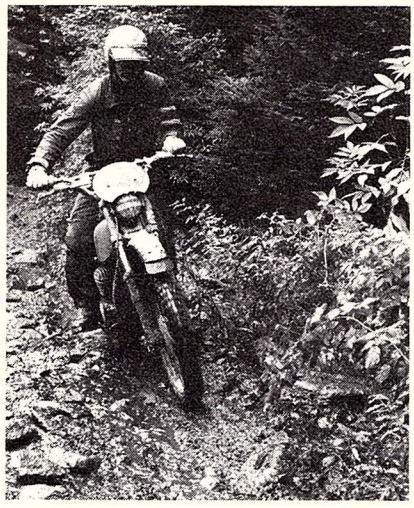



511

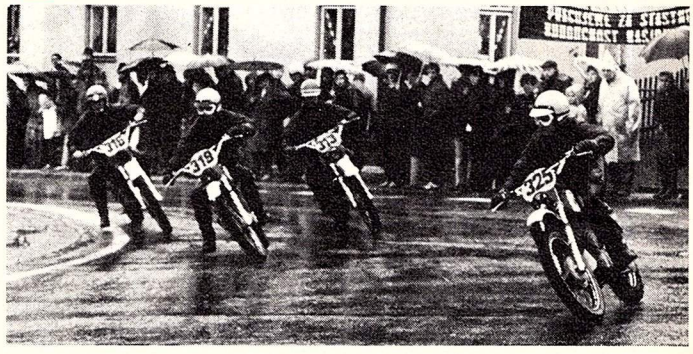
THE SIX DAYS

Czechs win big . . .
bad luck hits Americans
Text and photos by Graham Forsdyke



Two devastating helpings of bad luck hit the American Trophy team's bid in September's International Six Days Trial. Up until the last day of the Czechoslovakian event, the Penton-mounted six-man team held a creditable fourth place behind the leading Czechs, East Germany and Italy. And then disaster struck.

On the short, 90-mile run to the final speed test, Jack Penton and Dick Burleson struck trouble with their 175cc bikes. For Burleson, the 24-year-old Husqvarna Motor Corp. engineer who notched three class wins in the American qualifying enduros, the trouble was petty but time consuming. He broke the rear chain and just did not have the correct links to make a repair. By the time he got hold of the parts, fitted them and got to the next check point he was 34 minutes late and down from a gold to a silver medal.



Penton's trouble was electrical but cost the 18-year-old youngest member of the clan seven marks, giving him a silver medal to add to the bronze he won in 1970 and the gold he scored last year. The pair's total of 47 marks pushed them down to sixth place behind West Germany, who lost four when Zundapp ace Heinz Brinkmann went off route, and four clean sextets—Czechoslovakia, East Germany, Italy and Russia.

Not only was the route said to be the toughest ever devised for a Six Days but on five of the six days rain lashed the Giant Mountains near the Polish border, turning every mile into a fight against the elements.

Top American performer in the acceleration and moto-cross special tests was Swedish import Lars Larsson of the Puch-mounted Vase B team who was eighth overall in the fiercely contested 175cc class.

Top: Dave Eames of U.S. team goes upstream on his 500 Yankee twin. Middle: Four Jawa-mounted Czech Trophy and Vase men get it on during final speed test. Left: J. Pacholke of the U.S. gets set to pass Brian Taylor of Zambia. Right: Charles Vincent on a 500 Yankee shows typical American riding style.

The American Pentons performed well all week and so impressed the International Jury that they were awarded the coveted Watling Trophy given annually to the non-winning team which puts up the most meritorious performance. But in the secondary Vase contest things were not so bright with America's Vase B team finishing 12th with 311 marks against them and the Husqvarna Vase A quartet in 21st spot.

But the hero of the American squad was little George Peck from New England. Riding a 125cc Dalesman which he saw for the first time only hours before the start of the trial he fought gamely, completely out of his depth but determined to finish at any price. A broken toe did nothing to deter him and he eventually finished with nearly 240 marks against his name—by far the worst-placed finisher in the whole event but as proud of his bronze medal as any member of the winning Czech team.

In fact, the Czech victory was nothing less than a rout. They won the Trophy, first and second in the Vase contest and even the award for the best club team. But, at the start, their chances of a unique post-war Trophy-Vase hat trick, following their double victories in the Isle of Man in 1971 and Spain in 1970, looked bleak. For the Zundapp works Trophy team from West Germany were so fast on the moto-cross tests on the first two days that no other country was in with a chance. And for the past few years the Zundapps have set up an unrivalled record for reliability so there was little chance of trouble putting a rider out. What did tip the scales away from West Germany was a moment's carelessness by Brinkmann who missed a route marker and, by the time he found his way back, was four marks adrift.

For the Americans the trial was good training for next year's event in Massachusetts. As moto-cross ace Barry Higgins said, the terrain is very like that of the Berkshire event but in Czechoslovakia the hills are steeper. Barry's ride on the big Yankee twin ended on the third day when the clutch went up in smoke.

And, although the American Trophy Team failed to repeat its brilliant fourth place of last year, the experience of the Czechoslovakian country around Spindleruv Mlyn may be invaluable—for the Czechs are bidding for the prestige 50th ISDT scheduled for 1975. •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SWEDISH ARMY BIKES

New approaches to win a contract.
By Mick Woollett

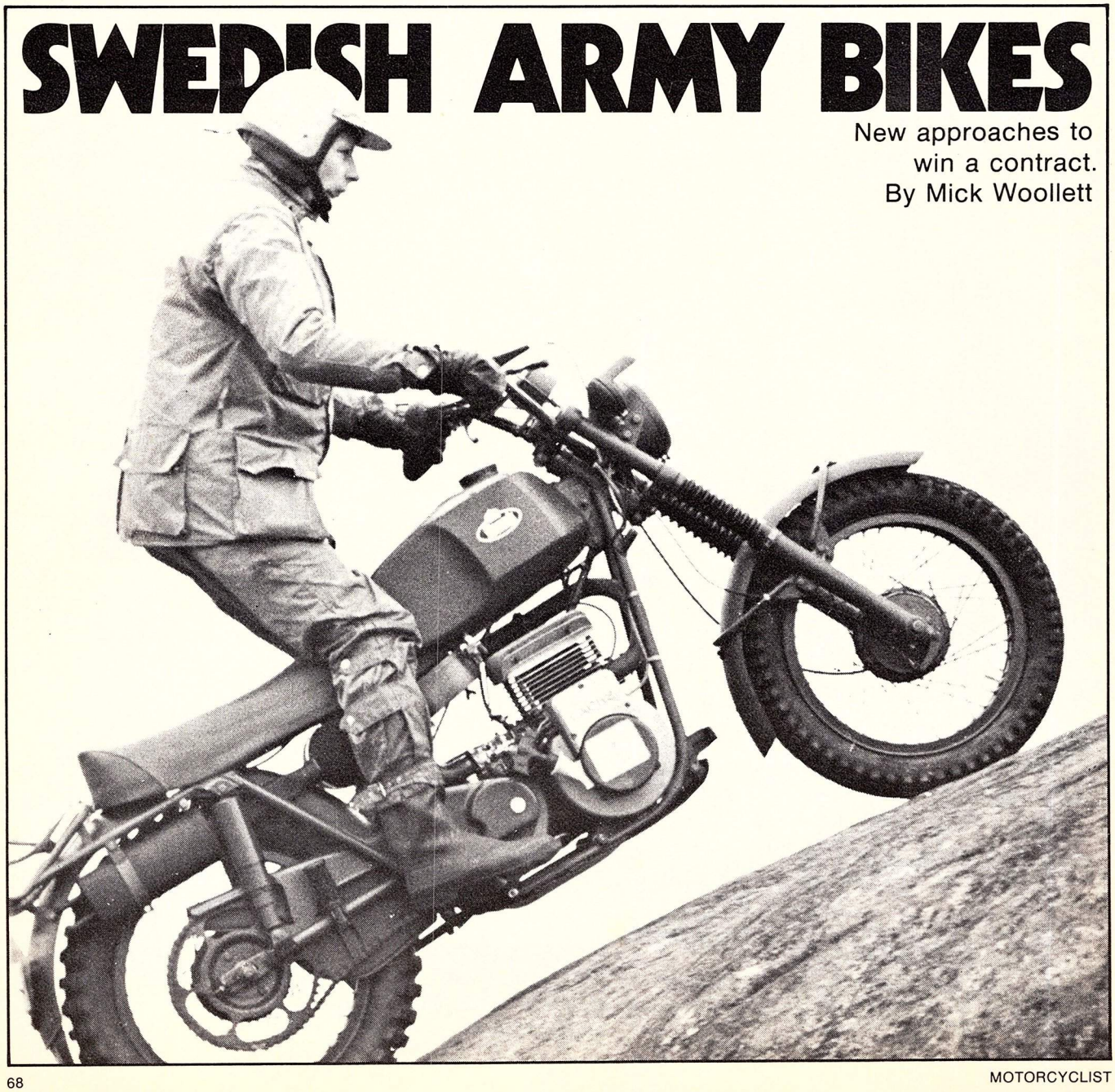
At a time when many of the world's armies are giving up the motorcycle it is interesting to find that the Swedish army is planning to award a contract worth close to two million dollars within the next year—and that three manufacturers have developed radically new machines in an effort to win this plum.

A country of lakes and forests, Sweden needs a mobile fighting force. And this is where the motorcycle comes in—able to speed through woods impassable to other motor vehicles. For winter conditions of snow and ice, out-rigger skis are fitted, hinged to the frame under the engine. The motorcycle is also used extensively for message carrying which may seem outmoded in these days of radio but apparently makes sense to the Swedish.

In any event the Swedish army wants 8,000 motorcycles and they want them to last a twenty-year span—from 1975 to 1995. And to give those interested definite guide-lines they have laid down certain conditions that the bikes must fulfill. Firstly they must have an automatic transmission. Secondly they must have a *minimum* rideable speed of 2½ miles per hour (without slipping the clutch) and a maximum of at least 60 mph. They must be able to be fitted with skis for winter work and not weigh more than 330 lbs.

Added together, these requirements make it pretty hard going for the design teams—but with two million bucks at stake three firms set out to build prototypes. Two of the concerns are well known in the motorcycle world: Husqvarna, famous for its moto-cross models, and Monark who has made a name for itself in the International Six Days Trial. The third firm has never made a motorcycle before. The name of this concern is Hagglunds and, rather like Kawasaki in Japan, it makes a wide range of industrial equipment and vehicles ranging from boats and trains to buses and generating sets. Quite recently they turned to military vehicles and they now make all the light armored vehicles used by the Swedish army.

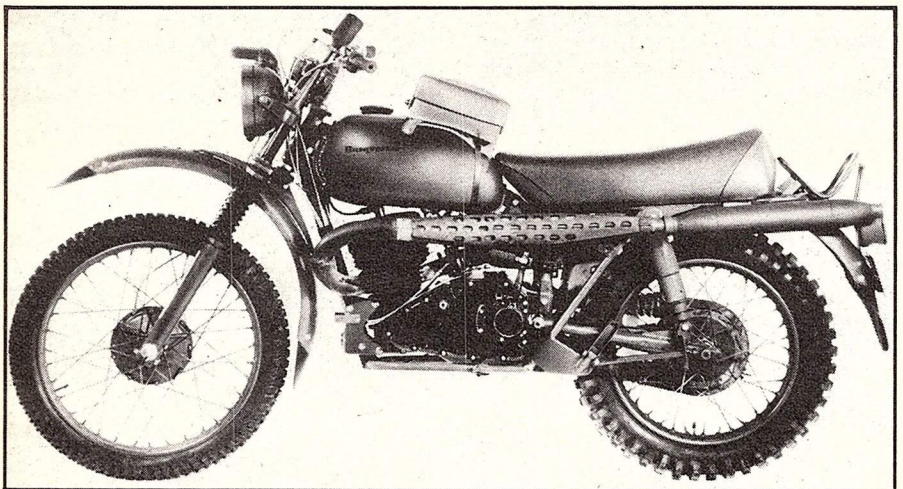
Not surprisingly, the Hagglunds motorcycle is the most revolutionary of the three. Unfettered by previous designs and ideas, they started with a clean sheet of paper and have come up with a machine which really does look different. For a start, the cast six-spoke alloy interchangeable wheels are mounted on stub axles. This means that they can be taken off and changed in a matter of minutes—simply by unscrewing three nuts. Both are fitted with disc brakes. The main frame section is of sheet steel welded into a box which forms the fuel tank, the rear mudguard and the mounting for the front fork and the single rear suspension unit. On top of this steel frame is a removable seat with a toolbox and carrying compartment taking the place normally occupied by a

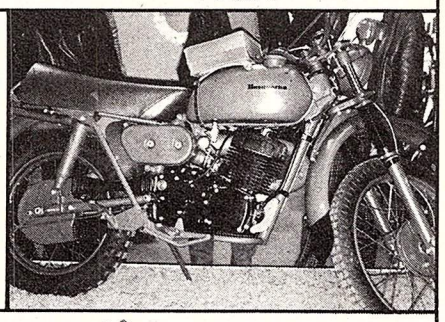


fuel tank. This bike is powered by a single cylinder West German 293cc Sachs two-stroke engine fitted with a hand starter and an American Tillotson carburetor of the type which will operate even when the engine is lying on its side—important when ice and snow are involved. Transmission is automatic with a centrifugal clutch and an expanding pulley gear system of the type developed in the Fifties by DKW and used on a light motorcycle.

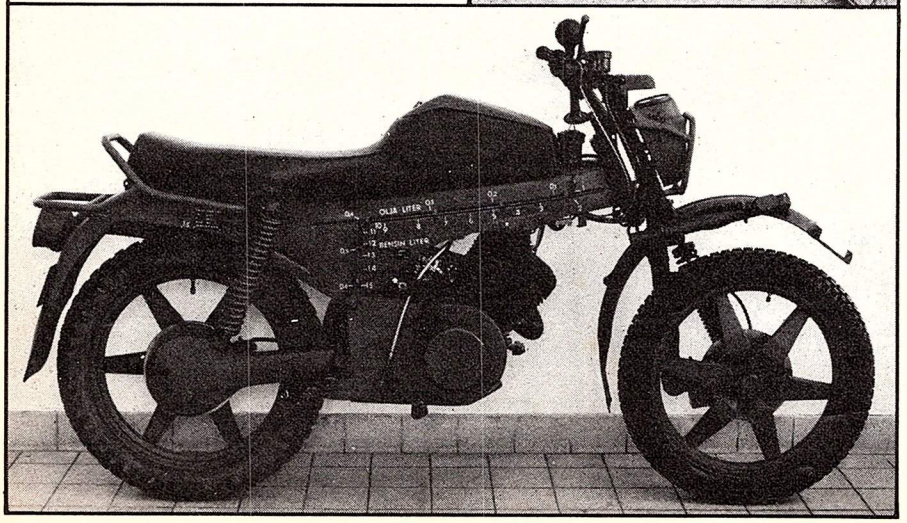
The Monark prototype also has a single cylinder Sachs two-stroke engine of 293cc—but the engine is mounted with the cylinder vertical instead of inclined forward as in the Hagglund. But while the Hagglund has shaft drive to the rear wheel, the Monark sticks to a conventional chain. In fact, apart from the expanding pulley automatic transmission, the Monark is a fairly orthodox bike—and not even its designers can claim that it's a pleasant looking beast!

Best looking of the three is the Husqvarna which bears a strong resemblance to the famous moto-crossers from the same factory. And it is the Husky that really breaks new ground on the transmission side. For it is fitted with a completely new, Husqvarna designed, hydraulic automatic transmission system which relies on a series of seven pumps, whose pressure is regulated by engine speed, to take up the drive and vary the gear ratio. Main problem is that this is heavy—and to drive it successfully it requires a 350cc engine. This takes the weight up to right on the maximum but as Husqvarna won the last army contract to be awarded, they obviously know what they are doing. They also have the advantage of making almost the complete machine themselves. The first trials have taken place, each maker demonstrating two prototype bikes—but the Swedish army will not make a decision until next year. •





Left: *Former motocross ace, Lundele, tests the Monark prototype army machine. It's Sachs engine.* Above & right: *Husqvarna version for the army is more typical of current bikes except for auto trans.* Below: *Hagglunds is most unique. It has stub axles, cast six-spoke alloy wheels and 293cc Sachs engine.*



ONTARIO *Continued from page 25*

hardly keep up in 1972. If anything, they appear to be slower every time out. Last year at Ontario, Nixon lapped at 2:07. This year the same machines were hard pressed to better 2:10, perhaps signifying the need for development chief Doug Hele's magic touch. Plans call for some American-made versions of the British chassis for sale to the private riders, but who would want a machine that is both slower and more expensive than a 350 Yamaha?

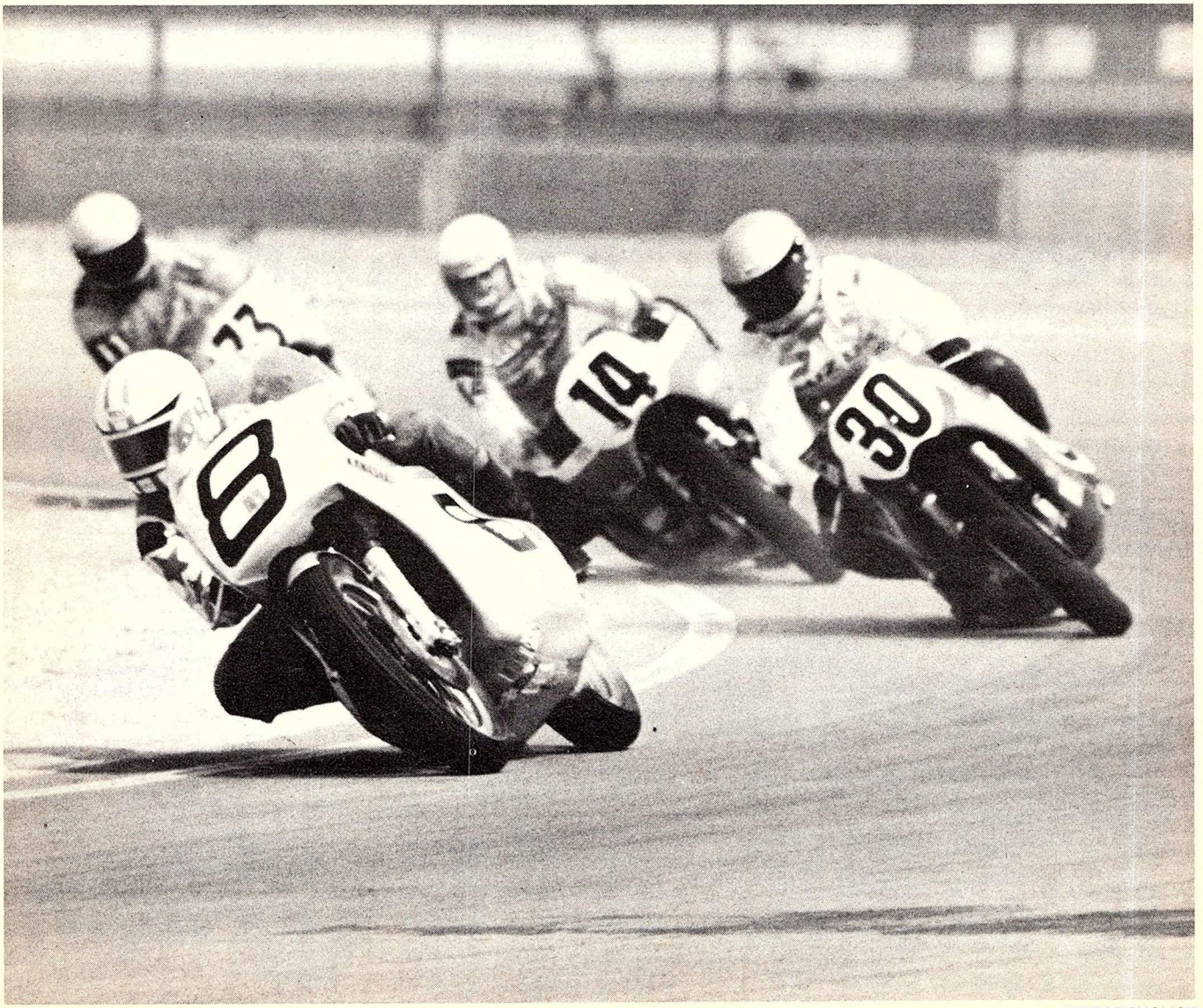
Every year the experts predict that the little 350 Yamaha has had its day. Running a 350 against a 750 just doesn't seem logical, but Carruthers and Roberts got their 350's to the finish line in the first heat at Ontario before any of the bigger-engined bikes. Next year the air-cooled machines will be obsoleted by a water-cooled version that has already shown enough speed in the hands of Jarno Saarinen to defeat the best 750's in Europe. At Ontario one of the visiting Englishmen was heard to comment, that if Jarno had his water-cooled machine there would be nothing or no one who could keep him in sight. Could 1973 again be the year of the Yamaha?

Or maybe the year of the Harley-Davidson. They got the new alloy XR 750 reliable enough to go 250 miles at Ontario, when earlier in the year it was hard-pressed to finish a 20-mile dirt event. Rayborn won Indianapolis and Laguna Seca, was in the hunt at Ontario until he unloaded. While they are still down a little in the horsepower department, they have one of the finest handling chassis around. They have an added advantage, shared with Yamaha and Triumph-BSA, of being able to run over 100 miles on a 6.2-gallon tank of gas. The big two-strokes just can't make it, costing them at least 15 to 20 seconds for a stop. If Dick O'Brien and the racing division in Milwaukee can squeeze another 10 horsepower out of the engine without sacrificing reliability or drastically increasing fuel consumption, they could be the ones for '73.

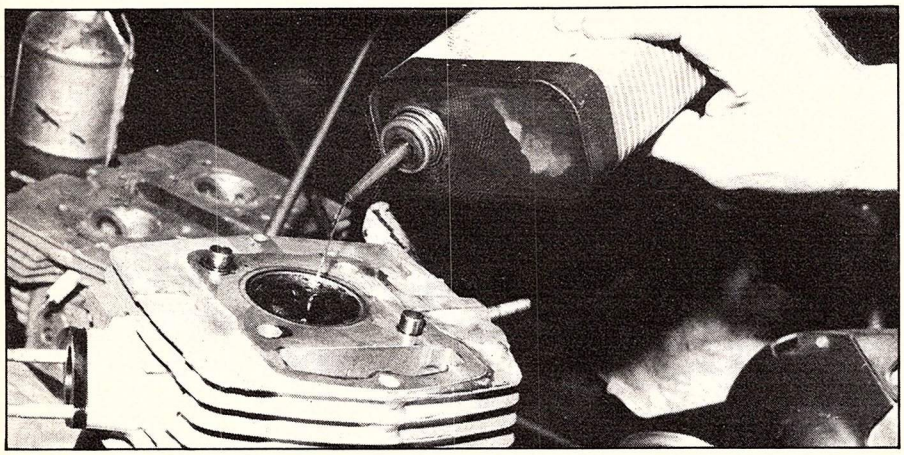
There are others, unassociated with any factory, that could well present some surprises in the coming year. The Arlington Motors' Kawasaki ridden by Cliff Carr is an obvious one, although a factory or two may already be bidding for Carr's services. The 750cc Honda made a big splash at Daytona one year and then faded. However, several private efforts like Yoshimura and Action Fours have shown promise. During 1972, young expert Steve McLaughlin has had his 750 Honda in the top ten during almost every National, only to drop out before the finish with one problem or another. There may also be a few of the new 750cc Ducatis making an appearance, with and without factory support.

Whatever takes place over the winter months, there's a good season of racing in store for 1973. The fast machines will no doubt get faster, the unreliable ones more reliable. And if things go according to plan, they'll all be near the peak of their development when the third annual Champion Spark Plug Classic rolls around at Ontario. The first two have been great, the third one should be a dazzler.•

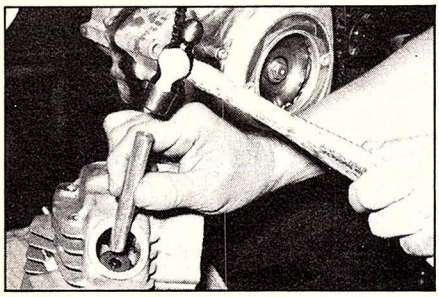
The early laps saw a battle for the lead end when several of the front runners crashed. Here, the eventual winner, Paul Smart, leads Baumann, Rayborn and Carruthers.



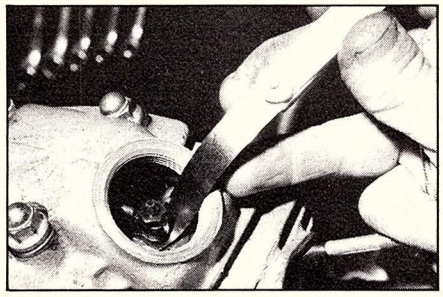
HONDA 100/125 ENGINE REASSEMBLY:



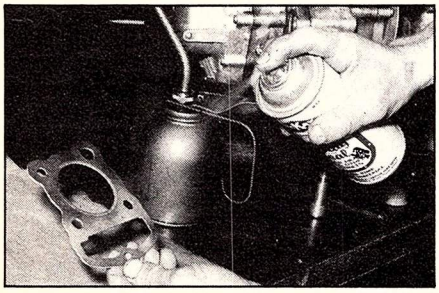
25 (Continued from page 50) Thoroughly wash both head and valves after lapping is completed to prevent ruining stems and guides from compound. Test seal of valves by installing without springs and filling with gas. Should seep very slowly.



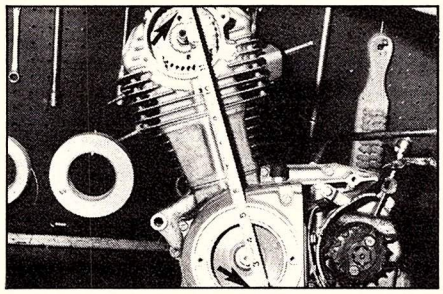
26 Install valves, springs and keepers. Tap each stem top to ensure that keepers are seated well into groove.



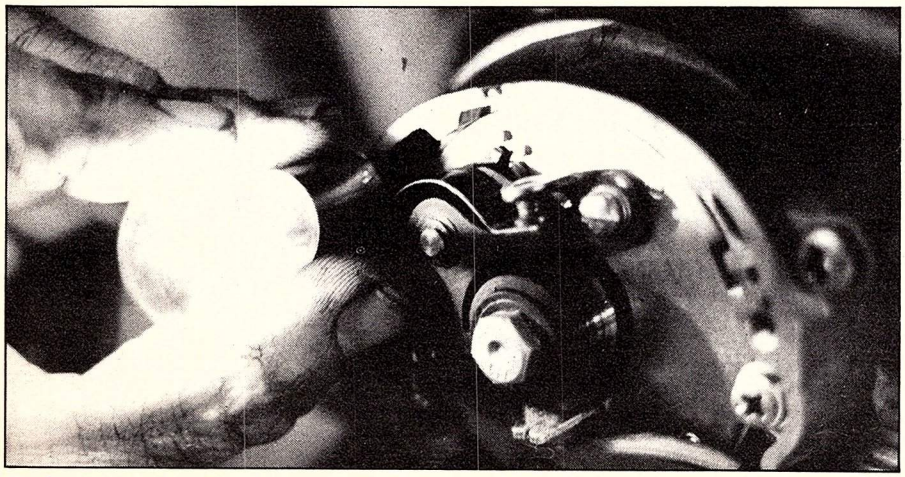
27 Valve clearance is; intake .002", exhaust .004" (cold). Assemble valve train before putting head on engine.



28 Automotive spray gasket seal works great. Use Honda gaskets only. Torque head bolts to 18 ft. lbs. reading.



29 Line up the cam sprocket and alternator timing marks (arrows) as shown before bolting down chain drive.



30 After shoehorning engine into place, replacing parts, filling with oil and timing will complete the task. A light bulb held to ground and against the point spring with the key on tells you when the contacts open for timing dead engine.

CATALOGS

1973 SUZUKI FUN CENTER CATALOG

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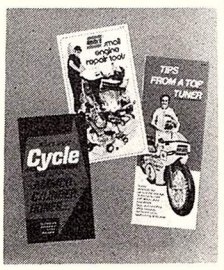

Ammco Tools, Inc. is offering an info package of interest to all cycle fans. One of the pamphlets called "Tips From A Top Tuner" was written by Warner Riley who holds the world record for conventional motorcycles (206.544 mph). A second pamphlet is devoted to the correct procedures for honing cycle cylinders. A tool catalog is included too.

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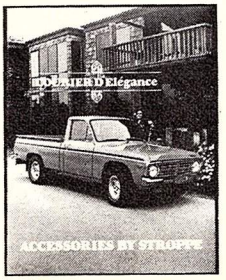

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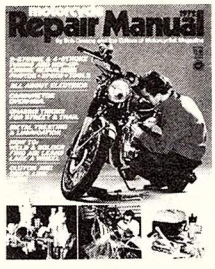
BOOK REVIEW!

By John T. Jo

What every motorcyclist needs is a book that tells him how to maintain his bike in tip-top shape so he can continue to enjoy reliable performance and fun riding. It should be a book of practical instruction based on proven expertise; it should cover the whole vehicle—and it should be easy to read, filled with detail, and fully illustrated. Now there is just such a book—the just-published, 288-page, Petersen **Motorcycle Repair Manual.**

Whether you're a novice at mechanics or an experienced pro, you'll find that this book has a wealth of technical information which will remove many of the mysteries of motorcycle maintenance and repair. From chapters on tools and basic shop math, to minor and major tune-ups, to engine rebuilding and hop-up, this book by veteran cyclist Bob Greene and the Editors of **Motorcyclist** magazine tells it all.



The large section on minor engine tuning, for example, covers 13 representative models of the most popular makes, including Yamaha, Suzuki, Kawasaki, Montesa, BSA, Husqvarna, Honda and Bridgestone. Large, clear photographs show the key steps to follow, aided by the exact specifications for your particular model found in a factory service manual.

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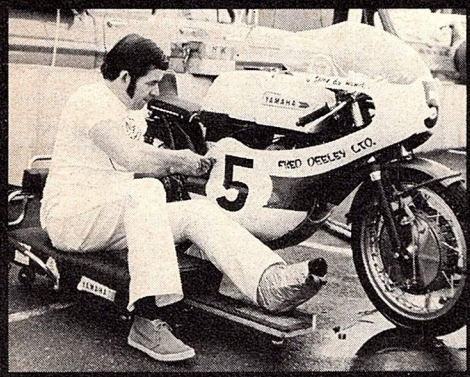
A good share of the fun of motorcycle owning/riding comes from the satisfaction of keeping it in good shape yourself. Petersen's **Motorcycle Repair Manual** can help you add to that pleasure. It's a full maintenance and repair course for only $3.95. Get your copy at your favorite newsstand, or order directly from Petersen Publishing Co., 8480 Sunset Blvd., Los Angeles, Calif. 90069 (include .25¢ for postage). •

THE LAST PAGE

"Fred's explaining to that guy why we don't like pit racers."

"Let's see, if you lose one point for a dab and three points for both feet down, this oughtta be about..."



"He blows the whole budget on the bike and look what I have to use for a sidecar!"